VISION IAS

www.visionias.in

GENERAL STUDIES (TEST CODE : 1417)

Name of Candidate	SAI MANASA NC		
Medium Hindi/Eng.	English	Registration Number	966377
Center	–	Date	9.12.2020

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
9	10	
10	10	
11	15	
12	15	
13	15	
14	15	
15	15	
16	15	
17	15	
18	15	
19	15	
20	15	

Total Marks Obtained:

Remarks:

Signature of Examiner

INSTRUCTIONS

1. Do furnish the appropriate detaiis in the answer sheet (viz. Name, Registration Number and Test Code).
   उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न–पत्र कोड, विद्यार्थी क्रमांक आदि)।
2. There are **TWENTY** questions printed in **ENGLISH & HINDI**
   इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।
3. **All questions are compulsory.**
   सभी प्रश्न अनिवार्य हैं।
4. The number of marks carried by a question/part is indicated against it.
   प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
5. Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other that the authorized one.
   प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न–सह–उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे।
6. Word limit in questions, if specified, should be adhered to.
   प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
7. Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.
   उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

EVALUATION INDICATORS

1. Contextual Competence
2. Content Competence
3. Language Competence
4. Introduction Competence
5. Structure - Presentation Competence
6. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

All the Best

Don't write anything this margin (इस भाग में कुछ ना लिखें)

1. Dadabhai Naoroji left an indelible imprint on the national movement. Explain. **(150 words) 10**
दादाभाई नौरोजी ने राष्ट्रीय आंदोलन पर एक अमिट छाप छोड़ी। स्पष्ट कीजिए।

Dadabhai Naoroji was known as the 'Grand Old Man of India' for his incomparable contribution to the national movement.

He was an early nationalist who:

a) provided an economic critique of British rule through his book 'Poverty and Un-British Rule'. It gave the drain of wealth theory.

b) He organised constitutional methods of struggle using prayers, petitions and protests.

c) He appealed to the morality of the British masses in London. He set up the British-based East India

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Association to expose the plight of Indians to the world.

d) He advocated social reform e.g: through Rehnumai Mazdayasan Sabha.

e) He reconciled differing factions within the national movement such as Moderates and Radicals at the 1906 INC session. Thus, he fostered unity among the freedom fighters, opposing the British policy of Divide & Rule.

Naoroji was also a respected man who served as Dewan of princely states, professor in Britain and a member of British Parliament. He provided a strong intellectual force to ignite later generations of nationalists

Don't write anything this margin (इस भाग में कुछ ना लिखें)

2. The Quit India movement marked a new direction in the struggle against the British colonial rule in India. Analyse. **(150 words) 10**
भारत छोड़ो आंदोलन ने भारत में ब्रिटिश औपनिवेशिक शासन के विरूद्ध संघर्ष में एक नई दिशा को चिन्हित किया। विश्लेषण कीजिए।

The Quit India Movement started in 1942 in response to the failure of Cripps Mission to address Indian demands for complete independence.

It marked a new direction in struggle against colonial rule as:

a) It was a leaderless movement. Earlier movements were led by Gandhi and other Congress leaders. However, the arrests of top leadership paved way for grass-root leadership.

b) Gandhi's call ~~for~~ of "Do or Die" represented no restrictions ~~of~~ on

Don't write anything this margin (इस भाग में कुछ ना लिखें)

the method of struggle. Earlier Non-Cooperation Movement and Civil Disobedience Movement (CDM) were explicitly restricted to non-violent methods.

c) Immense participation of women, urban and rural masses

d) large-scale parallel governments e.g. in Satara

e) war time opposition to colonial rule pressed the British to conceded demands, as opposed to support to the British during World War I.

Thus, although the Quit India Movement dissipated in several places in months, it showed the British that the masses were awakened. It paved for transfer of power in 1947.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

3. The end of World War II marked the birth of a new international order. Examine. (150 words) 10
द्वितीय विश्व युद्ध के अंत ने एक नई अंतर्राष्ट्रीय व्यवस्था को जन्म दिया। परीक्षण कीजिए।

World War II (1939-1945) saw large-scale destruction of countries, empires and deaths of millions of people.

It's end resulted in a new international order that was to "save succeeding generations from the scourge of war".

Hence, the United Nations was created to:

a) achieve the objectives of world peace, development and human rights

b) provide for collective security where UN Security Council can call for military action against imperia-

Don't write anything this margin (इस भाग में कुछ ना लिखें)

listic actions of states

c) provide a platform for peaceful resolution of disputes among nations.

While this had its beginnings in the League of Nations (LoN), the UN system was more robust.

Moreover, UN was accompanied by Bretton Woods Institutions (IMF, World Bank & GATT), that sought to:

- establish free trade to prevent trade wars that caused world wars
- allow development of nations through loans.

Thus, the end of World War II marked the start of a liberal international order which provided rules for international relations.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

4. The Simla Agreement (1972) and Lahore Declaration (1999) are two key milestones in the history of the Indian subcontinent. Discuss.

(150 words) 10

शिमला समझौता (1972) और लाहौर घोषणा-पत्र (1999) भारतीय उपमहाद्वीप के इतिहास में दो महत्वपूर्ण उपलब्धियां हैं। चर्चा कीजिए।

The Indian subcontinent is one of the least developed regions of the world outside sub-Saharan Africa. A prime reason for this is India-Pakistan hostility.

While several wars in 1948, 1965 and 1971 liberation of Bangladesh soured relations, later agreements were milestones in history as:

a) Simla Agreement of 1972:

- This provided for bilateral resolution of disputes between India and Pakistan, especially w.r.t. Kashmir

Don't write anything this margin (इस भाग में कुछ ना लिखें)

b) Lahore Declaration of 1999:

This reaffirmed the commitment to bilateral resolution.

Implications:

① This prevents the entry of external powers like China and USA into the Kashmiri dispute.

② It does not allow Pakistan to internationalise the issue and call for UN intervention like in 1948.

③ Since India is a greater power relative to Pakistan, it gives India the ability to resolve the disputes in favourable terms.

In recent years, as Pakistan has escalated tensions threatening peace in South Asia, it has been reminded of the agreements.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

5. Social security should not only involve economic empowerment but also social empowerment. Discuss in the context of India. **(150 words) 10**
सामाजिक सुरक्षा में न केवल आर्थिक सशक्तीकरण अपितु सामाजिक सशक्तीकरण भी सम्मिलित होना चाहिए। भारत के संदर्भ में चर्चा कीजिए।

India is home to 28% of the world's poor. It also witnesses high inequalities, both social and economic, as revealed in Oxfam's Time to Care report.

Conventional measures to improve social security have focused on economic empowerment such as:

a) access to credit, insurance and pension through financial inclusion.

b) creating jobs e.g: MGNREGA

c) income support (PM-KISAN), loan waivers etc:-

Don't write anything this margin (इस भाग में कुछ ना लिखें)

While economic empowerment helps, India also faces other forms of poverty, especially in the social sphere:

- discrimination against women leading to high malnutrition, maternal deaths, etc.
- discrimination against lower castes eg: continued manual scavenging
- rural-urban divide

Thus, social empowerment is needed through:

a) strict enforcement of laws such as Dowry Prohibition Act, Prevention of Atrocities on SCs/STs Act

b) empower bodies like NCSC, NCST, NCW.

c) invest in health and education to build capabilities

A commitment to the Sustainable Development Goals (SDGs) is a good step.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

6. Explain with examples how globalisation is manifested in both local in the global and the global in the local. **(150 words) 10**
उदाहरण देते हुए स्पष्ट कीजिए कि वैश्वीकरण वैश्विक में स्थानीय और स्थानीय में वैश्विक, दोनों में किस प्रकार प्रकट होता है।

Globalisation is the increased interflow of goods, services, ideas, people and capital across borders, making the world a "global village".

This has manifested in different way such as:

local in the global:

a) global supply chains have developed, yet local industry has flourished in places like East Asia, etc:-

b) local handicrafts & produce are getting global appeal. eg: Pashmina shawls.

c) local and regionalistic feelings have also deepened.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Global in the local:

a) awareness about the world has increased even in remote villages through technology and social media.

b) increased access to foreign products. e.g: MacDonalds entering towns.

c) issues happening far across the globe affect everyone. eg: Black lives Matter protest in USA inspired Dalit lives Matter protest in India.

Thus, globalisation is truly "glocal". In recent times, we have seen calls for ~~local~~ "vocal for local" in a globalised era".

Don't write anything this margin (इस भाग में कुछ ना लिखें)

7. In light of persistence of various forms of violence against women in India, discuss the ways in which the issue can be addressed effectively.
(150 words) 10

भारत में महिलाओं के विरूद्ध हिंसा के विभिन्न रूपों की विद्यमानता के आलोक में, उन उपायों की विवेचना कीजिए जिनसे इस मुद्दे का प्रभावी ढंग से समाधान किया जा सकता है।

Women are subject to several forms of violence in India.

① Female foeticide - Despite the PCPNDT Act, Child sex ratio is falling, e.g: Haryana's CSR is 839.

② Domestic violence, which has increased during the pandemic

③ Sexual violence and harassment. e.g: Hathras rape case, acid attacks

④ Dowry harassment, especially in Rajasthan

Hence, from cradle to grave, women experience sustained violence.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Ways to address it:

① Strict enforcement of laws such as Dowry Prohibition Act, POSH Act, etc.

② Proper funding to women-specific schemes like Ujjwala scheme, SHE-box. Nirbhaya Fund has to be used properly.

③ greater recruitment of women in law enforcement. eg: Mahila Police Volunteers

④ gender-sensitive education in school that addresses "machoism".

⑤ empowerment of women economically and politically. eg: MGNREGA, reservation in PRIs are good steps.

⑥ Justice Verma Committee recommendations must be followed.

Thus, women must be safeguarded.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

8. What is an urban forest? Highlight its benefits and steps taken by the government to promote urban forestry in India. **(150 words) 10**
शहरी वन क्या हैं? इनके लाभों और भारत में शहरी वानिकी को बढ़ावा देने के लिए सरकार द्वारा उठाए गए कदमों पर प्रकाश डालिए।

Urban forestry is an innovative method to ensure ecological balance in urban areas and improve quality of life.

Urban forest

Benefits:

- shady trees provide respite from sun for & rickshaw pullers, etc:-
- fruit trees provide income support to urban poor
- regulate the climate and reduce pollution.
- promote recharge of ground water
- safeguard biodiversity

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Steps taken:

① Miyawaki method is being tried in pilot projects in cities.

② Nagar Van scheme to boost funding and citizen participation

③ Afforestation drives on degraded public land.

Urban forestry is an urgent requirement since our cities are growing unsustainably and are frequently prone to disasters eg: 2020 Hyderabad floods.

It needs to be further promoted by allocating more land, promoting awareness and conserving the trees already planted.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

9. How has globalization impacted the location of the IT industry? (150 words) 10

वैश्वीकरण ने IT उद्योग की अवस्थिति को किस प्रकार प्रभावित किया है?

Globalisation is the free movement of goods, services, people, etc. across borders.

The Information Technology (IT) industry is a product and promoter of globalisation that is driven by technological advances.

Location of IT industry has been impacted by globalisation as follows:

a) Outsourcing of software development and other services to countries with cheap labour. eg: BPO industry in India concentrated in Bengaluru.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

b) free movement of people across countries has facilitated development of tech hubs across the world such as Silicon Valley in USA and Singapore.

c) Since the IT industry requires good digital infrastructure such as fast internet and stable IPR policies, countries and states that focused on these have attracted IT investment. eg: Karnataka, Hyderabad.

India has benefited tremendously from globalisation because of the growth of the IT sector. This has provided employment and boosted exports.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

10. How can eco-tourism be used to sustainably harness the potential of tourism industry in India? Discuss the challenges and steps taken by the government in this context. **(150 words) 10**

भारत में पर्यटन उद्योग की क्षमता का संधारणीय रूप से दोहन करने हेतु पारिस्थितिकीय पर्यटन का कैसे उपयोग किया जा सकता है? इससे जुड़ी चुनौतियों और इस संदर्भ में सरकार द्वारा उठाए गए कदमों की विवेचना कीजिए।

Tourism industry is critical for the Indian economy as it has large spill over effects on hotel industry, transport, construction, and generates local employment.

However, tourism can be unsustainable when:

a) local resources area drained
eg: Shimla water crisis

b) tourists cause pollution through plastic, etc:-

Eco tourism is a good way forward to harness the potential of tourism in a sustainable manner.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Ecotourism

- → adventure sports such as canoeing, trekking. eg: Himalayas, Nilgiris
- → sightseeing, visiting local industries such as tea plantations in Assam.

Challenges:

a) poor infrastructure in tourist locations
b) lack of awareness on how to make tourism eco-friendly
c) insensitive attitude of tourists
d) fragile environment. eg: landslides in Himalayas

Steps taken:

a) SECURE Himalaya initiative promotes ecotourism for sustainable development
b) Swachh Bharat in tourist locations.

Ecotourism must be promoted heavily. A Green tax like in Bhutan can be levied on tourists to fund it.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

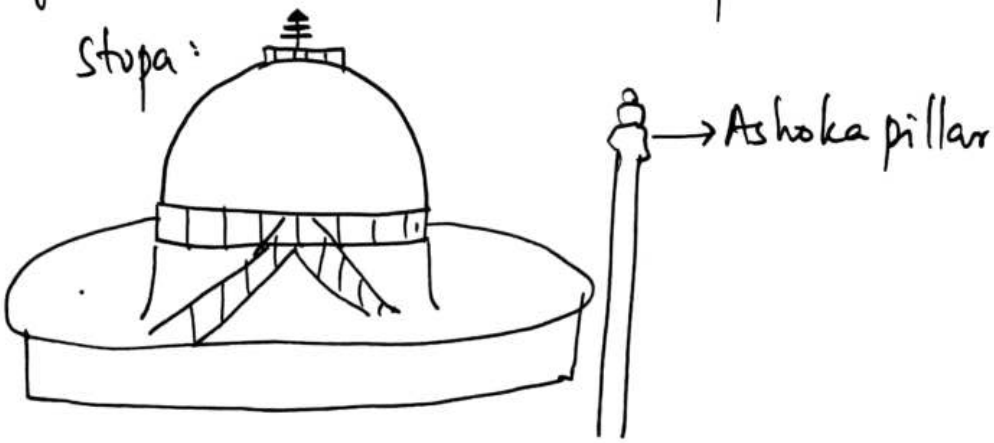
11. The advent of Buddhism and Jainism was instrumental in the development of architecture in ancient India. Discuss. **(250 words) 15**
प्राचीन भारत में स्थापत्य कला के विकास में बौद्ध धर्म और जैन धर्म का उद्भव सहायक रहा। चर्चा कीजिए।

Buddhism and Jainism developed around 500 BC with Gautam Buddha and Mahavira inspiring millions to change their views on life.

They were instrumental in the development of architecture as:

a) the first grand monuments are Buddhist stupas built during Maurya, Kushana and Satavahana periods.
eg: Amaravati, Sanchi stupas

Stupa:



Don't write anything this margin (इस भाग में कुछ ना लिखें)

b) Rock cut caves. eg: Ajanta, Ellora, with Chaityas and Viharas for Buddhists and Jains

c) Jain temples
eg: Pattadakal complex, Karnataka
~~Sith~~ Sitanvassal caves, Tamil Nadu
Dilwara temples, Mount Abu

d) rock sculptures:
eg: Rishabanatha statue, at Shravana-belagola, Gomateshwara, Nagarjuna statues.

e) Ashokan pillars and edicts that spread message of Buddhism

These also influenced the development of Hindu temples. Buddhist architecture was also taken to foreign lands - e.g: Borobudur stupa

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

in Indonesia, Buddhist caves in Tibet and ~~Chi~~ Korea.

Thus, Buddhism and Jainism inspired the first temples, monasteries (Nalanda) and cave architecture of India.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

12. The reactionary policies of Lord Lytton and the liberal policies of his successor Lord Rippon acted as catalyst in the formation of the Indian National Congress. Discuss. **(250 words) 15**

लॉर्ड लिटन की प्रतिक्रियावादी नीतियों और उसके उत्तराधिकारी लॉर्ड रिपन की उदार नीतियों ने भारतीय राष्ट्रीय कांग्रेस के गठन में उत्प्रेरक का कार्य किया। चर्चा कीजिए।

The Indian National Congress was formed in 1885 under the stewardship of A.O. Hume, when Lord Dufferin was Viceroy.

The formation of INC was catalysed by the preceeding Viceroys as shown below:

Lord Lytton:

Lytton passed a number of reactionary laws during the late 1870s such as:

a) Vernacular Press Act which curbed freedom of vernacular newspapers and censored them.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

b) strict government repression of peasant revolts and movements for greater Indian representation in government.

These reactionary policies fuelled anti-British feelings among Indians.

Lord Ripon :

this viceroyship in early 1880s saw several liberal policies such as:

a) repeal of Vernacular Press Act, thus freeing the press.

b) Ilbert Bill controversy - that allowed Indian judges to try Europeans

c) Ripon's Resolution of 1884 that provided for municipal government in several towns, elected by residents.

These policies of Lytton and Ripon showed the nationalist leadership that government crackdown had to be avoided by adopting constitutional methods of struggle.

Moreover, the freed nationalist press reignited nationalistic fervor that had to be constructively channeled through a national organisation.

Thus, the INC was established to coordinate the national leadership and a constitutional method of struggle was adopted initially.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

13. Gandhiji changed his methods of struggle against the British from time-to-time to suit the varied circumstances and problems that needed to be tackled. Analyse. **(250 words) 15**

गांधी जी ने विभिन्न परिस्थितियों और समस्याओं जिनसे निपटने की आवश्यकता थी, के अनुकूल समय-समय पर अंग्रेजों के विरूद्ध संघर्ष की अपनी विधियों में परिवर्तन किया। विश्लेषण कीजिए।

Mahatma Gandhi led the national movement from 1919 till independence in 1947.

Gandhi's entry into the freedom struggle marked a new era. It contained mass movements of satyagraha.

However, Gandhi's methods of struggle were not fixed and changed according to the needs, as seen below:

a) Initial movements such as Champaran Satyagraha of 1919

Don't write anything this margin (इस भाग में कुछ ना लिखें)

tested Gandhi's method of satyagraha on Indian soil as they had proved successful in South Africa.

b) Gandhi brought peasants, workers in industries, urban and rural masses into the national struggle, since he felt only the masses were capable of overthrowing the British.

c) The Non-Cooperation Movement (NCM) in 1920-22 involved:

- no tax campaigns
- boycott of British schools, goods, courts, etc.
- voluntary relinquishment of awards
- support for khadi & Swadeshi

This showed the government the costs it can incur if people did not cooperate. It fuelled Indian industry.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

d) Civil Disobedience Movement in 1930-1933: This involved willful breaking of government laws such as salt law. Hence, it was a step further from NCM that:

- exposed the cruelty of the government when it tried to repress the movement
- drew international support from USA and USSR.

e) attitude towards ahimsa: Though Gandhi initially stressed on ahimsa such as suspending NCM due to Chauri Chaura incident, he implicitly allowed violence in Quit India Movement through his call for Do or Die.

Thus, Gandhian methods adapted and became increasingly radical.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

14. Bring out the relationship between the industrial revolution and the advent of imperialism in different parts of the world. (250 words) 15
औद्योगिक क्रांति और विश्व के विभिन्न भागों में साम्राज्यवाद के आरंभ के मध्य संबंधों को स्पष्ट कीजिए।

The Industrial Revolution started in 18th century Britain and quickly spread to the rest of Europe.

Features of Industrial revolution:

a) technological advances. eg: spinning jenny invented by James Hargreaves in 1767, cotton gin, power loom

b) mass production - the new tools and machines allowed for large-scale production, lowering prices.

c) requirement of assured supply of raw material and market for production and sale of goods.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

The Industrial revolution was achieved through imperialism as the colonies supported its requirements:

① raw materials: eg: cotton from India, timber, indigo, sugarcane, etc:- from several colonies.

② market: the subjugated populace was forced to buy European goods through:

- destruction of indigenous industry through removal of tariffs and flooding of cheap products
- growth of rail network and waterways that allowed deeper penetration of goods inland
- creating taste for goods. eg: opium in China, tea in India.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

③ revenue extracted from colonies served as investment in companies, as several colonial Governors were the early capitalists

④ destination of capital investment: colonies provided enormous returns on investments, e.g: in railways, where capitalists could invest their profits, leading to financial imperialism.

Thus, Britain industrialised by deindustrialising India, China, etc.

Soon other powers like France, Germany, Denmark also followed. The race for colonies fuelled by industrialisation later led to the world wars.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

15. The caste system in India has continued to persist by adapting itself to a variety of changing socio-economic and political conditions in the past few decades. Discuss. **(250 words) 15**

भारत में जाति व्यवस्था विगत कुछ दशकों में परिवर्तित होती विभिन्न सामाजिक-आर्थिक और राजनीतिक स्थितियों के अनुरूप अपने आपको ढालकर विद्यमान है। चर्चा कीजिए।

Caste is an important feature of Indian society.

There are 4 main castes: Brahmins, Vaishyas, Kshatriyas & Shudras and numerous sub-castes or jatis. The "untouchables" or Dalits who are not in the caste-fold form a significant population.

Issues with caste:

a) it has transformed into a rigid system based on birth.

b) notion of purity of upper castes and pollution of lower castes

Don't write anything this margin (इस भाग में कुछ ना लिखें)

is against the notion of equality of all humans.

c) hierarchy, discrimination and social evils affect human dignity.

There have been several attempts to end the evils of caste, such as:

a) social reform movements pre-Independence eg: Aravipuram movement

b) Constitution which provides for equality (Articles 14-18), liberty and human dignity

c) legislation such as Civil Rights Act 1955, Prevention of Atrocities on SC/ST Act, Manual Scavenging Act

However, caste persists and has adapted itself to socio-economic and political conditions.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

eg:

a) reservation policies have increased caste consciousness. Caste groups like Jats, Marathas, etc:- demand reservation in educational institutions and government jobs.

b) inter-caste marriage is still frowned upon, despite Ambedkar foundation.

c) mobilisation of voters on caste lines eg. caste-based parties such as BSP, Kham coalition, etc:-

d) Green revolution and other development measures have benefited upper castes and OBCs while Dalits have been marginalised.

In India, caste exists across religions and has become pervasive.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

16. It is argued by some that regionalism is a threat to national integrity while others consider it as a highly impactful tool in facilitating political participation. Discuss. (250 words) 15

कुछ लोगों द्वारा यह तर्क दिया जाता है कि क्षेत्रवाद राष्ट्रीय अखंडता के लिए एक खतरा है, जबकि अन्य लोग इसे राजनीतिक सहभागिता को सुगम बनाने में एक अति प्रभावशाली साधन मानते हैं। चर्चा कीजिए।

Regionalism is a strong sense of attachment to one's own region or local community.

Since India is a diverse nation, regionalism is natural.

Regionalism can be a threat to national integrity when it is manifested as:

a) separatism - e.g. secessionist movements like the demand for Nagalim, Kashmir, Khalistan, etc.

b) inter-state hostility - e.g. Kaveri dispute between Karnataka and Tamil Nadu.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

c) anti-migrant sentiment : eg: sons in Maharashtra, reservation of jobs for locals in Andhra

Thus, regionalism can hinder national integration.

However, it can also facilitate constructive political participation such as :

a) demand for statehood – e.g: Telangana, Ladakh.

b) demand for autonomy under 5th and 6th schedule

c) demand for inclusion of language in 8th schedule.

Thus, regional movements can voice demands of people for development and protection of their culture.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Our constitution contains this complexity as it provides for asymmetrical federalism where each region can pursue its own constructive ambitions.

The government must allow for positive constructive movements to voice their demands while ensuring territorial integrity of the nation and fraternity among the people.

As the Sarkaria Commission held, regional movements can be tackled with decentralisation and grass root democracy.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

17. Natural gas has become an important primary energy source and its consumption is projected to increase further. Identify various usages of natural gas and give a brief account of its distribution globally.

(250 words) 15

प्राकृतिक गैस एक महत्वपूर्ण प्राथमिक ऊर्जा स्रोत बन गया है तथा इसके उपभोग में आगे और वृद्धि होने का अनुमान है। प्राकृतिक गैस के विभिन्न उपयोगों की पहचान कीजिए और विश्व स्तर पर इसके वितरण का संक्षिप्त विवरण दीजिए।

Natural gas is a clean fuel which forms 6% of India's energy mix.

Uses
- → as fuel in vehicles. eg: CNG buses in Delhi
- → for cooking.
- → electricity generation & heating
- → raw material for fertilisers
- → chemicals & pharmaceuticals

It has become an important primary energy source as:

a) it is widely available across the world.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

b) it is easy to transport using pipelines - e.g: Urja Ganga Pipeline

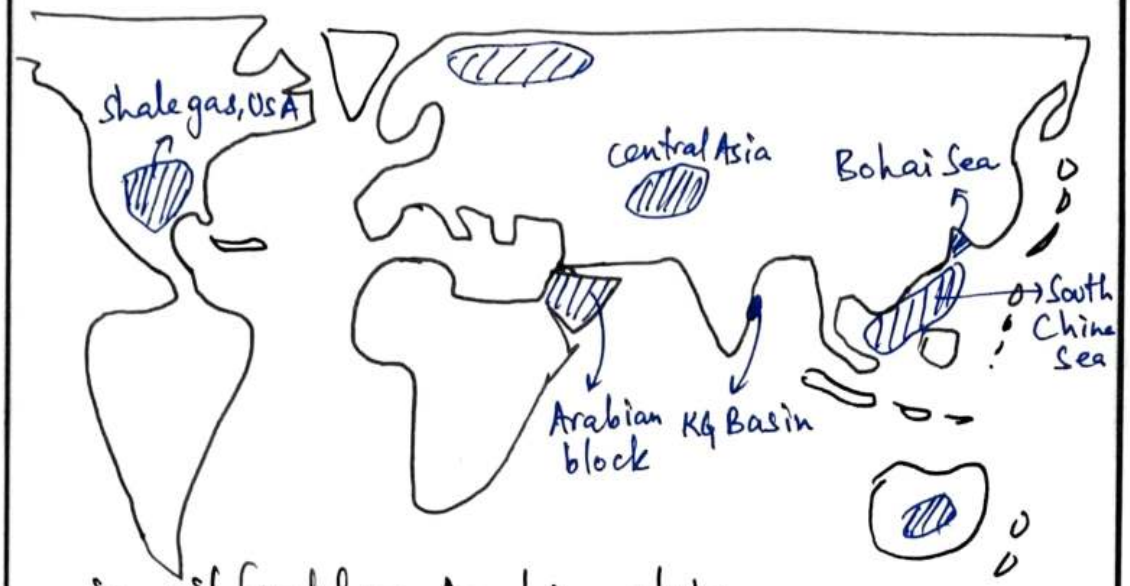
c) clean fuel as it has lower carbon emissions than petrol & coal and negligible sulphur & PM emissions.

It's consumption is projected to increase further due to measures to reduce carbon emissions as part of the Paris Agreement of 2015.

Distribution of Natural gas:

- shale gas is widely distributed eg: USA, China, Russia, KG basin in India.
- gas hydrates and under sea reservoirs eg: South China sea, Bohai Sea
- permafrost - eg: Siberia

Don't write anything this margin (इस भाग में कुछ ना लिखें)



- in oil fields - Arabia, etc.
- coal bed methane - coal reserves in India, Australia

However, natural gas is difficult to extract if it is in unconventional forms.

India must promote use of natural gas in public transport and for cooking (eg: PAHAL scheme). We must also explore new basins and invest in technology. The new HELP and Open Acreage Licensing Policy are a good step.

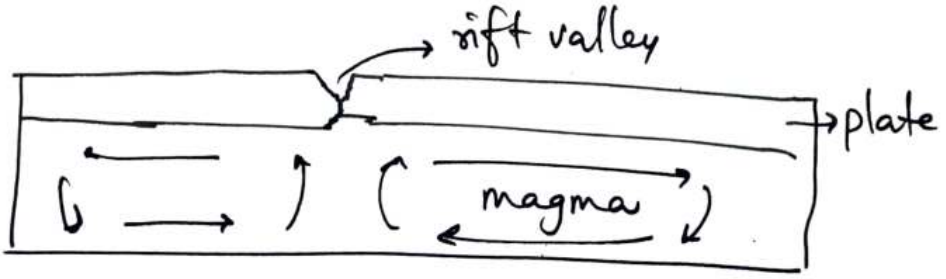
Don't write anything this margin (इस भाग में कुछ ना लिखें)

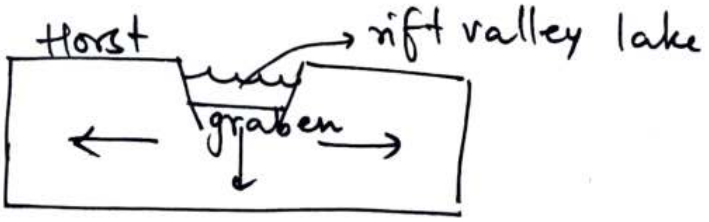
18. Describe the process of rift valley formation, with special emphasis on the Great Rift Valley System. **(250 words) 15**

महान भ्रंश घाटी प्रणाली पर विशेष बल देते हुए, भ्रंश घाटी के निर्माण की प्रक्रिया का वर्णन कीजिए।

A rift valley is a depression formed in the earth due to tectonic plates moving apart.

According to the plate tectonic theory, the earth's lithosphere consists of plates in motion due to convectional currents in magma



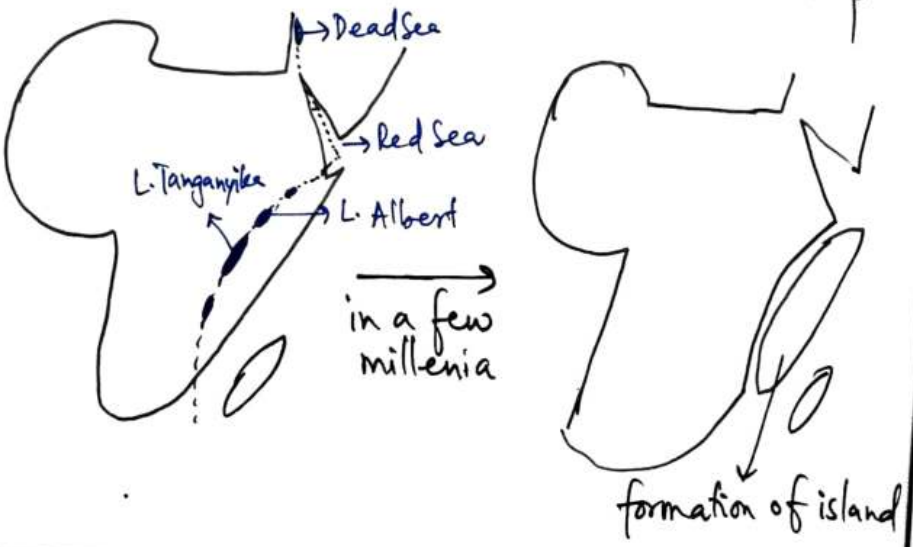


Don't write anything this margin
(इस भाग में कुछ ना लिखें)

As plates move apart,

- the earth surface cracks open
- this collects water forming rift valley lakes, e.g: Lake Tanganyika in East Africa
- As the valley widens, it becomes a shallow sea with influx of sea ~~water~~ water.
- It soon becomes an ocean. eg: opening up of Atlantic Ocean.

The Great Rift Valley system of East Africa is the best example.



Don't write anything this margin (इस भाग में कुछ ना लिखें)

Thus, the East African lakes are widening. In a few millenia, the eastern part of Africa will break away to form an island like Madagascar.

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

19. India's water resources have witnessed rapid depletion due to a mix of economic, geographic, and political factors. Explain and discuss its implications. **(250 words) 15**

भारत के जल संसाधनों में विभिन्न आर्थिक, भौगोलिक और राजनीतिक कारकों के संयोजन के कारण तेजी से ह्रास देखा गया है। स्पष्ट कीजिए एवं इसके निहितार्थों की विवेचना कीजिए।

While India has 17% of the world's population, it only has 4% of the world's freshwater resources.

India's water resources have witnessed rapid depletion due to several factors:

① Geographic:

a) Much of India's river water ends up in the ocean without being tapped

b) deforestation has reduced recharging of ground water aquifers.

c) climate change and melting of Himalayan glaciers threatens perennial nature of Himalayan rivers.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

d) High population density in Gangetic basin has depleted ground water and polluted river water.

② Economic :

a) Green revolution promote water-intensive methods in agriculture
e.g: High Yielding Variety seeds require more water.

b) MSP system encourages wheat and rice. Fair Remunerative Price for sugarcane encourages water-intensive sugarcane production.

c) High demand for water in urban areas leads to transport of water from rural acquifers leading to droughts in rural areas.

d) degradation of wetlands and forests for development purposes destroys water storage.

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

③ Political:

a) free electricity to farmers by state governments for vote-bank politics depletes ground water.

b) mismanagement by water boards in municipal areas.

Implications:

India will soon face a severe water crisis, as seen in Chennai recently. NITI Aayog held that 21 cities like Delhi ~~bar~~ will run out of groundwater soon.

Impact →
- conflict over resources
- Environmental refugees
- international disputes
  eg: Teesta issue

Thus, water conservation techniques must be promoted in agriculture, industry and in households. The recent Jal Shiksha Abhiyan is a good step.

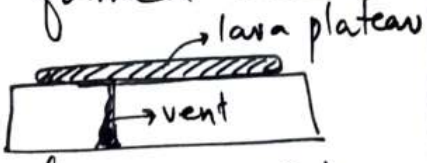
Don't write anything this margin (इस भाग में कुछ ना लिखें)

20. How are plateaus formed? Also, briefly discuss the features of the Deccan plateau and its economic significance. **(250 words) 15**

पठार का निर्माण कैसे होता है? साथ ही, दक्कन के पठार की विशेषताओं और इसके आर्थिक महत्व की संक्षेप में विवेचना कीजिए।

Plateaus are large areas of land that are flat and elevated compared to the surrounding region.

Plateaus can be formed due to several factors:



① Lava plateaus: outpouring of basic lava from hotspots that flows for large distances before solidifying.

eg: Decean plateau was formed due to Reunion hotspot when the Indian plate was moving towards the Eurasian plate in the Mesozoic era.

Icelandic plateau and Columbia Snake plateau are also examples.

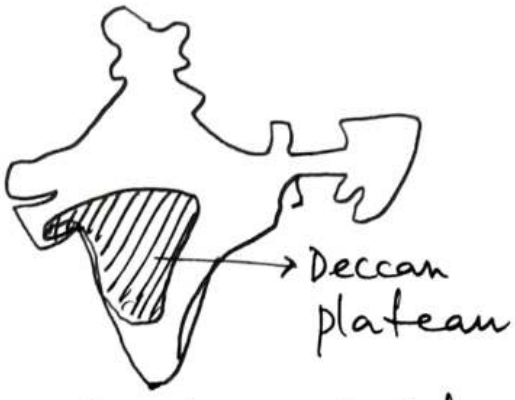
Don't write anything this margin (इस भाग में कुछ ना लिखें)

② subsidence of land due to downwarping forces, leading to block mountains and plateaus.

e.g: mesas in North America.

Decean plateau:

The Decean plateau is a lava plateau, formed in the Mesozoic era.



Features:

a) surrounded by Western Ghats, Eastern Ghats and Satpuras

b) it has black soil due to basaltic rock

c) it is dissected by rivers such as Godavari and Krishna

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Economic significance:

a) black soil is highly fertile, water-retentive and self ploughing. This allows cash crops like cotton. Gujarat & Maharashtra are thus leading producers of cotton.

b) hard rock structure does not easy allow percolation of water, leading to droughts, e.g. Vidarbha.

Thus, Deccan plateau is a unique feature in India and is of economic value.

VISION IAS

www.visionias.in

GENERAL STUDIES (TEST CODE : 1524)

Name of Candidate	SAI MANASA NC		
Medium Eng./Hindi	Eng.	Registration Number	966377
Center	—	Date	15.12.2020

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
9	10	
10	10	
11	15	
12	15	
13	15	
14	15	
15	15	
16	15	
17	15	
18	15	
19	15	
20	15	

Total Marks Obtained:

Remarks:

INSTRUCTIONS

1. Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).
   उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न–पत्र कोड, विद्यार्थी क्रमांक आदि)।
2. There are **TWENTY** questions printed in **ENGLISH & HINDI**
   इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।
3. **All questions are compulsory.**
   सभी प्रश्न अनिवार्य हैं।
4. The number of marks carried by a question/part is indicated against it.
   प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
5. Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other that the authorized one.
   प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न–सह–उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे।
6. Word limit in questions, if specified, should be adhered to.
   प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
7. Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.
   उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

EVALUATION INDICATORS

1. Contextual Competence
2. Content Competence
3. Language Competence
4. Introduction Competence
5. Structure - Presentation Competence
6. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

1. Tenancy reforms are much needed to give a boost to the Indian agricultural sector. Comment. In this context, also discuss the significance of the Model Land Leasing Act, 2016. **(150 words) 10**

भारतीय कृषि क्षेत्रक को बढ़ावा देने के लिए काश्तकारी सुधारों की अत्यंत आवश्यकता है। टिप्पणी कीजिए। इस संदर्भ में, मॉडल भूमि पट्टा अधिनियम, 2016 के महत्व की भी विवेचना कीजिए।

Agriculture employs more than 50% of the workforce but contributes to only 16% of the GDP.

A major hindrance to agricultural growth is the inadequacy of tenancy reforms pursued post-independence

Issues
- fragmentation of land holdings
- lack of collateral and documentation with tenants
- poor investment and mechanisation.

Tenancy reforms can address these issues by empowering tenants and protecting lessors.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Model Land Leasing Act of 2016 provides for:

① formal tenancy agreements to:
- ensure safety of tenure to lessees to avoid unfair eviction
- fix rent beforehand in terms of cash or share of produce to avoid exploitation.
- provide documentation which tenants can use to avail bank credit.
- protect landowners from squatting.

② promote land consolidation which will
- foster mechanisation
- boost formation of cooperatives

③ promote contract farming.

States must pass legislation to implement this. The recent Farm Services Act, 2020 also provides similar measures. This can boost agricultural GDP & double farmer income.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

2. Identify the various challenges that have restricted the entry of Indian MSMEs into the foreign market. Also mention some government initiatives that have been taken to facilitate MSME exports. **(150 words) 10**

विदेशी बाजारों में भारतीय MSMEs के प्रवेश को बाधित करने वाली विभिन्न चुनौतियों की पहचान कीजिए। साथ ही, MSME के निर्यात को सुगम बनाने के लिए सरकार द्वारा की गई कुछ पहलों का भी उल्लेख कीजिए।

MSMEs form 40% of the Indian manufacturing sector and 45% of merchandise exports.

However, MSMEs are unable to effectively enter foreign markets as:

① Tendency towards "Dwarfism" as held by Economic Survey 2019-20:

- government support hinders initiative to grow
- prevents economies of scale

② poor technology adoption, especially in textile industry.

③ poor access to bank credit.

④ high logistical costs in shipments, turnover time

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Government Initiatives:

① Better access to credit:
- MUDRA scheme for easy loans
- psbloans within 59 minutes
- Trade Receivables discounting system to allow pledgeing / trade of invoices

② Procurement:
- Government-e-Marketplace: 25% procurement from MSMEs
- special focus on women and SC-led MSMEs

③ export-support through:
- APEDA: provides packaging, quality checking to meet SPS standards
- EXIM Bank: insurance for exporters

④ others: Make in India initiative, loan moratorium under Atmanirbhar Bharat, credit-linked subsidy, etc:-

MSMEs must be encouraged to grow to boost exports.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

3. India's march towards inclusive growth and it achieving the Sustainable Development Goals are intricately linked. Discuss. **(150 words) 10**
समावेशी विकास की दिशा में भारत की प्रगति और संधारणीय विकास लक्ष्यों की प्राप्ति जटिल रूप से जुड़े हुए हैं। चर्चा कीजिए।

Though India has witnessed double digit growth since LPG reforms of 1990s, Oxfam's Time to Care report shows that growth has not been inclusive.

Inclusive growth is intricately linked to achieving SDGs as:

① Poverty - growth must take place where poor live, rural areas, with resources the poor have - unskilled labour (SDG 1)

② food & nutritional security: (SDG 2)
- agricultural sector needs focus as present growth is service-sector led.
- women and SCs show high malnutrition.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

③ public services - inclusive growth should cater to health and education through public-sector led or universal provisions. (SDG 3, 4)

④ climate action (SDG 13): climate change & natural disasters have greater burden on poor, women, and marginalised.

⑤ Decent work & economic growth for all (SDG 8) explicitly provides for inclusive growth.

Thus, inclusive growth & SDGs need to be pursued together, as recognised in Agenda 21.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

4. Highlight the need for evolving an appropriate system of Rules Of Origin in regional trading arrangements. What steps have been taken by India recently in this regard? **(150 words) 10**

क्षेत्रीय व्यापार व्यवस्थाओं में उत्पत्ति के नियमों की एक उपयुक्त प्रणाली विकसित करने की आवश्यकता पर प्रकाश डालिए। हाल ही में, भारत द्वारा इस संबंध में क्या कदम उठाए गए हैं?

With multilateral trade regime under WTO breaking down, regional trading arrangements are the new normal.

Rules of origin ensure that only goods produced in the trading bloc get benefits. This curbs exploitation by external "free-riders".

For e.g.: NAFTA 2.0 has stronger rules of origin to prevent Chinese goods entering USA through Mexico.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

[Steps by India]:

① Demand for strong rules of origin in RCEP to prevent Chinese goods flooding India. The potential entry into RCEP in future requires this.

② concept paper submitted in WTO to suggest reforms including stronger rules of origin

③ Harmonised system of nomenclature of WCO made mandatory to trace origin of goods.

④ stricter border controls with Myanmar & Bangladesh to prevent third party goods.

However, India must increase cooperation with EU, ASEAN, etc:- to improve rules of origin & ensure fair trade.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

5. MSP regime is a creation of an era of scarcity in the 1960s. Discuss its relevance in the current era of surplus agricultural production.

(150 words) 10

MSP व्यवस्था 1960 के दशक के अभावग्रस्तता के युग का एक आविष्कार है। अधिशेष कृषि उत्पादन के वर्तमान समय में इसकी प्रासंगिकता की विवेचना कीजिए।

Minimum Support Price (MSP) was introduced during the Green Revolution to encourage farmers to boost production.

MSP assures a remunerative price for 23 crops and is decided by the Commission for Agricultural Costs & Prices (CACP).

MSP was created in an era of scarcity and has succeeded in ensuring food security.

Relevance in era of surplus:

MSP is considered outdated as:

① it hinders market-determination

Don't write anything this margin (इस भाग में कुछ ना लिखें)

of prices, preventing private sector entry in agribusiness & food processing.

② high fiscal deficit for Centre

③ depletion of ground water due to water-intensive crops like rice

④ poor nutrition due to overproduction of rice & wheat rather than cereals.

However, MSP can still be relevant as:

① Farmers cannot find remunerative prices in private markets.

② high input costs such as seeds, chemical fertilisers, etc:- necessitate assured market.

③ government procurement is necessary for PDS.

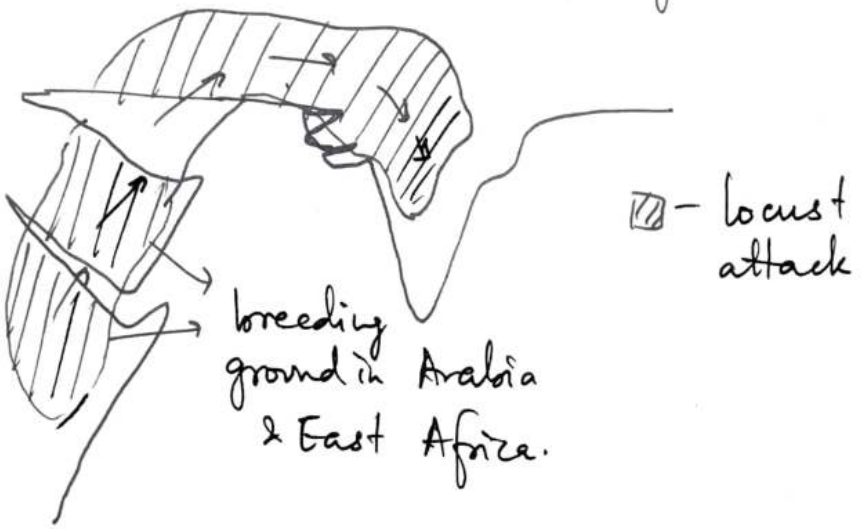
Hence, relevance of MSP is debated. While it can ensure support to farmers, it must be reformed to promote millets and encourage private sector entry.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

6. Examine the link between the recent locust attack and climate change. (150 words) 10

हाल ही में हुए टिड्डियों के हमले और जलवायु परिवर्तन के मध्य संबंध का परीक्षण कीजिए।

While locust attacks are a historical phenomenon, the magnitude and geographical extent of the 2020 locust attack was larger.



The recent locust attack is linked to climate change as:

① Abnormally high positive Indian Ocean Dipole lead to multiple cyclones in Arabian Sea region.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(2) Cyclones coupled with unseasonal rains in Eastern Africa promoted breeding of swarms of locusts by moistening the ground.

(3) strong westerly winds took the swarms eastward towards India.

Thus, climate change which causes high sea surface temperatures and erratic rainfall promotes locust attacks.

India must cooperate with Pakistan, Iran, etc. to control the swarms in their resting phase. The Locust Warning Centre at Jodhpur must coordinate with IMD to provide forecasts depending on weather patterns

Don't write anything this margin (इस भाग में कुछ ना लिखें)

7. Highlighting the properties of Carbon Nanotubes, discuss its applications. (150 words) 10

कार्बन नैनोट्यूब्स के गुणधर्मों पर प्रकाश डालते हुए, इसके अनुप्रयोगों की विवेचना कीजिए।

Nanotechnology is a revolutionary advancement in science with far reaching applications.

Properties of Carbon nanotubes:

- Carbon at molecular level has larger surface area compared to volume which ensures:

1. high tensile strength
2. high electrical conductivity
3. flexible nature - can be folded, twisted to make bucky balls & fullerines.
4. thermal insularity

Applications:

① Medicine:

- precision delivery of drugs to

Don't write anything this margin (इस भाग में कुछ ना लिखें)

organs

- replacement of blood capillaries with carbon nanotubes.

② waste remediation:

- clean oil spills
- extract heavy metals from water
- molecular sieves.

③ protecting equipment:

- bullet-proof jackets eg: Baba Kavach by BARC
- packaging equipment for fragile cargo

Thus, carbon nanotubes have several applications. India must scale up research to utilise their potential.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

8. India's domestic patent regime privileges public health over pharmaceutical industry's interests. Comment. (150 words) 10
भारत की घरेलू पेटेंट व्यवस्था औषध उद्योग के हितों पर सार्वजनिक स्वास्थ्य को विशेषाधिकार प्रदान करती है। टिप्पणी कीजिए।

India's domestic patent regime has been a bone of contention in WTO, with US pharma companies accusing India of weak IPR protection.

Indian law under Patents Act provides for:

a) no patents in case of:
- mere combinations of existing drugs
- utility patents with cosmetic improvements in taste, etc:-
- evergreening discouraged.

b) compulsory licensing allowed in case of life saving drugs. eg: Cancer drugs allowed for production by Indian PSUs.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

c) protection to indigenous knowledge and traditional medicine
eg: preventing patenting of turmeric, tulsi, etc:-

Thus, Indian patent regime privileges ~~dom~~ public health over pharma industry's interests.

This has allowed Indian companies to ~~mea~~ make cheaper generic drugs which India exports to Africa, etc, reducing disease burden.

However, it hinders investment in R&D by pharma companies and leads to disagreements under WTO. India must promote more humane patenting regime worldwide.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

9. Bring out the arguments surrounding the idea of employing the principle of 'one border - one force' on Indian borders. (150 words) 10
भारतीय सीमाओं पर 'एक सीमा-एक बल' के सिद्धांत का उपयोग करने के विचार के चतुर्दिक व्याप्त तर्कों को स्पष्ट कीजिए।

India has a land border of 15,000 km with 7 countries and a maritime border of 7,500 km.

Arguments for one border - one force:

① Security threats from each border are different.

e.g.: • infiltration of terrorists from Pakistan
• drug trafficking from Golden Crescent & Golden Triangle from Pakistan & Myanmar
• insurgent movement in Northeast
• state-led military aggression by China

② Terrain of borders is different:
• evergreen forests with Myanmar,
• crisscrossing rivers with Bangladesh

Don't write anything this margin (इस भाग में कुछ ना लिखें)

- Swamps, desert & thimalayas with Pakistan

etc.

③ allows efficient policy making and troop deployment for specific border threats.

India has adopted One Border - One Force principle after 1962 war with:

a) Border Security Force - Pakistan, Bangladesh
b) Indo-Tibetan Border Police - China border
c) Assam Rifles - Myanmar
d) Sashastra Seema Bal - Nepal, Bhutan.

However, this can lead to redundancies and inefficient utilisation of resources. With Central Armed Police Forces also deployed (eg: CRPF in Kashmir), it increases confusion and leads to security lapses. The policy can be reconsidered by National Security Council.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

10. Assess the need to create a new cadre of Indian Frontier Administrative Service to undertake the vital tasks at Indian frontiers. (150 words) 10
भारतीय सीमांतों पर महत्वपूर्ण कार्यों को संपादित करने के लिए भारतीय सीमांत प्रशासनिक सेवा का एक नया संवर्ग बनाने की आवश्यकता का मूल्यांकन कीजिए।

India had a Frontier Administrative Service that served in North Eastern Frontier Ageney (NEFA) after independence.

However, this was disbanded. Recently, there are calls to revive it and extend it to all frontiers.

Vital tasks at frontiers

- → security of borders from: military aggression, drug & arms trafficking, human trafficking, etc.
- → development of border regions: infrastructure; public services like health, education
- → promote efficient border intelligence through surveillance equipment.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Additionally, troops manning borders must be managed and diplomatic responsibilities with neighboring states are present.

These diverse tasks require a cadre with diverse skill sets ranging from administration & diplomacy to policing and security.

Thus a new cader of Indian Frontier Administrative Service is required.

However, there are already dozens of Central Services and a rationalisation of existing cadres is simultaneously required.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

11. The main objective of Union Budget 2020-21 is to provide "Ease of Living" to all citizens. Analyse the framework proposed in the Budget 2020-21 to achieve this objective. **(250 words) 15**

केंद्रीय बजट 2020-21 का मुख्य उद्देश्य सभी नागरिकों को "ईज़ ऑफ़ लिविंग" (जीवन सुगमता) प्रदान करना है। इस उद्देश्य को प्राप्त करने के लिए बजट 2020-21 में प्रस्तावित ढांचे का विश्लेषण कीजिए।

The Ease of Living Index by Ministry of Housing & Urban Affairs shows that Indian cities have a very poor standard of living.

Union Budget 2020-21 has aimed to provide "ease of living to all citizens".

Framework proposed:

① Affordable quality housing:

- PM Awas Yojana to provide credit-linked subsidy to developers, etc.
- RERA Act to ensure quality houses
- new rental laws to promote rental housing for students & migrants.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

② easier commute in cities through:

- multi-modal transportation: metro, public buses, e-rickshaw, bicycle lanes
- last-mile & feeder connectivity of buses to trains

③ Water supply:

- Jal Jeevan Mission aims for piped water supply to all rural households by 2024
- rationalisation of water rates by civic bodies
- improvement in quality as per BIS standards.

④ Internet connectivity:

- Digital India Mission to improve internet access through broadband
- public Wifi - PM-WANI.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

⑤ Cooking fuel:

- PAHAL LPG subsidy
- PM Ujjwala Yojana

This will reduce fuel wood & kerosene consumption, decreasing indoor air pollution.

⑥ Air pollution:

- National Clean Air programe in 102 cities
- monitoring of air quality through National Air Quality Standards.

Thus, ease of living is to be promoted in a multi-dimensional sense. This will improve health, increase productivity and secure a life of dignity to all, in line with SDGs.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

12. Several challenges are needed to be addressed to realise the full benefits of the recent agricultural marketing reforms. Discuss. (250 words) 15
हालिया कृषि विपणन सुधारों के पूर्ण लाभों को साकार करने के लिए अनेक चुनौतियों का समाधान करने की आवश्यकता है। चर्चा कीजिए।

Agricultural growth rate has stagnated in India below 5% on average.

The recent agricultural marketing reforms aim to address this:

① Farmers' Produce Trade & Commerce Act, 2020:

- allows wholesale trade outside APMC mandis with no tax.
- this will promote private sector entry in agricultural sector, bringing capital & technology.
- it will allow farmers to get remunerative prices outside APMCs that are prone to cartelisation & politicisation.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

② Farm Services Act, 2020:

- Agreement on Price Assurance provides for contract farming between farmers and traders or buyers.
- It will ensure assured market for produce, with dispute resolution mechanism.

③ Essential Commodities (Amendment) Act, 2020:

- price & stock limits to be imposed only in extraordinary circumstances.
- it will promote cold storage infrastructure and better prices to farmers & reduce wastage of produce.

Hence, these reforms aim to boost private sector entry, alleviate agrarian distress and ensure agricultural growth.

However, several challenges need to be addressed to realise their

Don't write anything this margin (इस भाग में कुछ ना लिखें)

full benefits :

① fears of exploitation of farmers by private corporations that can monopsonise the market.

- proper dispute settlement needed.
- regulation of private markets needed.

② awareness and literacy of farmers needs to be improved.

③ e-NAM should be promoted to develop a unified national market.

④ logistical costs must decrease through rural roads & lower freight charges.

Thus, the reforms if properly implemented & challenges addressed can double farmer income ~~and~~ by boosting agricultural growth.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

13. Multimodal transport requires multiple integrations across different modes of transportation. Substantiate. What are the challenges and opportunities associated with multimodal transportation for India? (250 words) 15

बहुविध परिवहन (मल्टीमॉडल ट्रांसपोर्ट) के लिए परिवहन के विभिन्न साधनों के मध्य विविध रूप से एकीकरण की आवश्यकता है। पुष्टि कीजिए। भारत के लिए बहुविध परिवहन मे जुड़ी चुनौतियां और अवसर क्या हैं?

Since India has a varying terrain and larger geographical extent, multi-modal transport is a necessity.

Multi-modal transport
- road
- rail
- waterways - inland, coastal
- air - domestic, international

It requires multiple integrations across different modes as:

① changes in terrain require different modes. eg: bus & railway terminals needed at banks of inland waterways.

Recently, Varanasi has been inaugurated as a multi-modal

Don't write anything this margin (इस भाग में कुछ ना लिखें)

terminal on NW-1

② hub and spoke model needed to reduce costs:

- port and hinterland connectivity:

- roads to act as feeders to railways
- public buses must feed metro stations in cities.

Challenges associated with multimodal transportation in India:

a) high investment required: public sector alone cannot provide, as envisaged in National Infrastructure Pipeline.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

b) poor quality of existing roads, ports, etc:-

c) problems in land acquisition & environmental clearances leading to delays.

Opportunities :

① Reduced fuel costs : eg: through waterways. This can:

- reduce carbon emissions & pollution
- reduce oil imports

② improved connectivity :

eg: waterways in North east through dense jungles

Thus, multi-modal transport must be encouraged across the country and in cities to decrease cost of transportation & improve ease of doing business.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

14. Though COVID-19 pandemic exposes the vulnerability of Informal sector and associated labor force in India, it also presents an opportunity to rebalance formal-informal economy dynamics in the country. Discuss.
(250 words) 15

हालांकि, कोविड-19 महामारी भारत में अनौपचारिक क्षेत्रक और संबद्ध श्रम बल की सुभेद्यता को उजागर करती है, लेकिन साथ ही यह देश में औपचारिक-अनौपचारिक अर्थव्यवस्था की गतिशीलता को संतुलित करने का एक अवसर भी प्रस्तुत करती है। चर्चा कीजिए।

The informal sector employs more than 90% of the working population but contributes to only 50% of GNP.

The COVID-19 pandemic has exposed vulnerability of informal sector labor force as follows:

a) increased lay offs and non-payment of wages.
- unemployment rate has risen sharply.
- recent mob attack on iphone manufacturing unit near Bengaluru shows resentment for non-payment of wages.

Don't write anything this margin

b) distress of migrant workers shows:
- lack of social security
- highly tenuous job market

c) hindrances in shipments of goods has hit:
- farmers who are self-employed and unable to find buyers
- MSMEs that ~~occu~~ employ informal labour, due to falling inventory

However, the pandemic also presents an opportunity to rebalance formal-informal economic dynamics as seen in:

① recent labour codes: promote formalisation of workers through:

a) raising permission requirement for retrenchment to 300 workers

b) promoting fixed term employment

Don't write anything this margin (इस भाग में कुछ ना लिखें)

This allows the workers to avail social security such as provident fund, maternity benefit, bonus & overtime pay, etc:-

② formalisation of informal enterprises such as scheme for micro-food processing enterprises.

③ promote skill mapping and skilling to & cater to new age jobs in manufacturing & service sector.

④ attracting FDI through Make in India will create more formal sector jobs.

However, India has to actively promote formalisation of workforce through schemes like PM Rozgar Yojana to curb exploitation of workers.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

15. Highlight the drivers and challenges facing India's ambition to become a gas-based economy. Mention the steps that have been taken by the government recently in this regard. (250 words) 15

गैस आधारित अर्थव्यवस्था बनने की भारत की महत्वाकांक्षा के चालकों और सामना की जाने वाली चुनौतियों को रेखांकित कीजिए। इस संबंध में हाल ही में सरकार द्वारा उठाए गए कदमों का उल्लेख कीजिए।

Natural gas accounts for 6% of India's energy mix.

Drivers of India's ambition to become a gas-based economy:

a) commitment to curb climate change under Paris Agreement:
- need to increase green fuel
- reduce carbon emissions

b) easy to transport through pipelines from refineries to users

c) abundance in supply internationally (Middle East, Myanmar) & domestic exploration - coal bed methane, shale gas in KG basin, etc:-

d) promotes employment & economic growth.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

[Challenges]:

1. technology overhaul needed in transportation: e.g.:
   - converting buses to use CNG requires investment like in Delhi
   - gas based engines not developed for major car brands, scooters, etc.) - yet.
2. infrastructure: gas filling stations needed, pipelines required
3. safety protocol required to avoid gas leaks like in Baghjan, Assam.

[Steps taken by government]:

1. Created demand for gas through:
   - PAHAL LPG subsidy
   - PM Ujjwala Yojana

   to ensure faster adoption of gas.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

2. Natural Gas Grid to promote nation-wide market
3. Gas Exchange to promote market-driven pricing & attract private investment.
4. Biogas promotion through Gobardhan scheme.
5. cross-border natural gas pipelines:
   - Amlekhgunj - Motihari pipeline to supply to Nepal.
   - pipeline from Shwe field in Myanmar to India.
6. PM Urja Ganga pipeline to provide gas to eastern India
7. reduced import tariffs.

Thus, India's path to a gas-based economy is challenging but promising.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

16. Climate Change and the associated events endanger the marine and coastal ecosystems while increasing the vulnerability of coastal population. Examine. (250 words) 15

जलवायु परिवर्तन और संबद्ध घटनाएं तटीय जनसंख्या की सुभेद्यता को बढ़ाते हुए समुद्री एवं तटीय पारिस्थितिक तंत्रों को खतरे में डालती हैं। परीक्षण कीजिए।

Carbon dioxide levels in the atmosphere have already increased to 0.04% from 0.03% of pre-industrial levels.

The resulting climate change endangers marine & coastal ecosystems as follows:

① marine heatwaves - destroy corals & fish population, deplete oxygen in seas

② ocean acidification - reduces rainfall, affects fish & tropical corals.

③ increased tropical cyclones - destroys coastal sand beaches and mangroves, causes large-scale damage to lives & property in coastal areas.
eg: Amphan, Nivar

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(4) sea-level rise:

- makes coral reefs aphotic zones leading to bleaching
- inundation of low-lying areas causing climate refugees.
  eg: recent migration from Andaman islands to Tamil Nadu.

(5) Algal blooms:

- block sunlight for aquatic flora
- endanger fisheries & livelihoods for fishermen

(6) Threat to coastal infrastructure such as power plants due to storm surges & tidal waves.

Thus, climate change presents a severe danger to marine & coastal areas.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Way Forward:

1. reduce climate change through enhanced commitments under Paris Agreement.
2. protect coastal communities through:
   - robust disaster management framework
   - reliant insurance policies.
3. improve mangrove belts near coasts
4. land reclamation as seen in Netherlands can be tried.

India must strive to achieve SDG 13 (climate action) and SDG 14 (protecting life below water) to protect coastal communities.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

17. Using examples, highlight how natural ecosystems perform different hazard mitigation functions. (250 words) 15

उदाहरणों का उपयोग करते हुए, रेखांकित कीजिए कि प्राकृतिक पारिस्थितिक तंत्र किस प्रकार अलग-अलग संकट के शमन का कार्य करते हैं।

The importance of natural ecosystems in hazard mitigation is recognized in Agenda 21 and the Sendai Framework for disaster risk reduction.

Different functions:

① Mangroves:

- prevent coastal erosion from tidal waves & tsunamis
- check wind speeds during cyclones
- reduce impact of storm surges & cyclones on coastal communities.

② Coral reefs:

- protect shoreline from strong waves & tidal bore.

Don't write anything this margin

③ forests on hill slopes:

- reduce mass movements & land slides
- provide structural stability to soil.

④ Mountain ranges:

- protect from cold winds
  eg: Himalayas protect India from Arctic winds, unlike USA where blizzards can wreak havoc.
- check dust storms
  eg: Aravallis prevent dust-laden winds from entering Delhi

⑤ Wetlands:

- act as riparian buffers to reduce floods
- allow water recharge in

Don't write anything this margin (इस भाग में कुछ ना लिखें)

underground aquifers to prevent droughts.

Thus, natural ecosystems are significant in hazard mitigation.

India must incorporate this in the National Disaster Management Policy and promote:

- afforestation in Himalayas & Western Ghats to prevent landslides
- mangrove belt along coasts
- restoration of wetlands

etc.

This is essential to reduce disruptions in economy & protect lives from natural disasters.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

18. Explain what genome sequencing is and state the challenges in scaling up genome sequencing projects. Also, throw some light on the recently launched IndiGen Project. (250 words) 15

व्याख्या कीजिए कि जीनोम अनुक्रमण क्या है और जीनोम अनुक्रमण परियोजनाओं को बढ़ावा देने में विद्यमान चुनौतियों का वर्णन कीजिए। साथ ही, हाल ही में आरंभ की गई इंडिजेन (IndiGen) परियोजना पर कुछ प्रकाश डालिए।

Genome sequencing is deciphering the sequence of DNA base pairs in the chromosomes of a species to mine genetic data.

In recent years, genome sequencing has become cheaper and faster due to CRISPR-Cas 9 technology

Challenges in scaling up :

① Human genome has 3 billion base pairs which differ according to ethnicity and the individual. This requires collection of large samples.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

② privacy concerns: sequenced genomic data can be misused or sold. Patient's consent is required.

③ Animal rights: animal genome sequencing can torture animals.

④ poor equipment available & large investment required

⑤ lack of trained personnel.

⑥ poor legislation to regulate it.

The IndiGen project of CSIR and other research institutions plans to sequence the Indian genome through volunteers.

Applications:

① Medicine:

- precision medicine as per genetic requirement.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

- promote research on neglected tropical diseases such as thalassemia.

(2) Anthropology:

- Indian ancestry and genetic modifications over generations can be traced.

However, the project needs to be complemented by strong regulation to prevent misuse of genomic data and ensure rights of the individuals.

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

19. India needs to avert radicalisation and societal dissention, as internal faultlines are a breeding ground for cyber and transnational terrorism. Discuss. (250 words) 15

भारत को कट्टरपंथीकरण और सामाजिक मतभेदों को रोकने की आवश्यकता है, क्योंकि आंतरिक दरारें साइबर एवं पार-राष्ट्रीय आतंकवाद का जनन स्थल होती हैं। चर्चा कीजिए।

India is highly prone to trans-national terrorism which is increasingly coming through the cyber route.

Internal faultlines are a breeding ground for this as:

a) polarisation on lines of religion and caste can lead to radicalisation of youth
e.g: recent arrests of youth in Kerala indicate it.

b) denial of autonomy and democratic freedoms can cause people to rebel against the state, leading to societal dissention.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

c) growth of social media has promoted radicalisation over Facebook, etc:- This promotes lone-wolf attacks.

d) external states such as Pakistan and terrorist groups such as ISIS can take advantage of internal faultlines to promote attacks.
eg: Pakistan's strategy of bleeding India with a thousand cuts.

Way Forward:

India needs to avert radicalisation and societal dissention through:

① increasing communal harmony and spirit of brotherhood as found in Article 51A (fundamental duty)

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(2) promote proper education of minority communities through liberal interpretations of holy texts to reduce religious terrorism.

(3) enforce regulations on social media to flag keywords related to terror.

(4) ensure inclusive growth and economic opportunities for all communities.

Radicalisation is a major threat across the world in the 21st century, especially due to cross-border migration.

India must complement anti-radicalisation measures with enhanced security infrastructure & international cooperation through FATF.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

20. Given the emerging security challenges, discuss why the establishment of Integrated Theatre Commands is being seen as an important defence reform. (250 words) 15

उभरती हुई सुरक्षा चुनौतियों को देखते हुए, चर्चा कीजिए कि क्यों एकीकृत थिएटर कमान की स्थापना को महत्वपूर्ण रक्षा सुधार के रूप में देखा जा रहा है।

In the 21st century, warfare has morphed to become multi-dimensional and involves technology.

India faces several security challenges, mainly from:

1. China in Himalayas and Indian Ocean
2. Pakistan

Integrated Theatre Commands involve all three armed forces: army, navy and airforce. India has one at Andaman & Nicobar Islands as a Tri-Services command.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

They are an important defence reform as:

① They promote theatre-specific exercises and fighting capabilities

eg: • desert warfare led by tanks near Pakistan border

• mountain corps with airforce providing cover in Himalayas

② reduce redundancies and promote efficient utilisation of resources.

③ enhance operational readiness through synergies between various forces.

④ the newly created cyber and space wings too are incorporated providing enhanced intelligence.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

India is promoting the establishment of integrated theatre commands. This is seen in

a) appointment of Chief of Defence Staff to oversee their creation and promote cross-service cooperation

b) theatre-level exercises
eg: TROPEX.

Thus, the nature of warfare keeps evolving & India must reform its abilities to ensure security.

VISION IAS

www.visionias.in

GENERAL STUDIES (TEST CODE : 1698)

Name of Candidate	SAI MANASA NC		
Medium Eng./Hindi	Eng.	Registration Number	966377
Center	Online	Date	5-12-2020

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
9	10	
10	10	
11	15	
12	15	
13	15	
14	15	
15	15	
16	15	
17	15	
18	15	
19	15	
20	15	

Total Marks Obtained:

Remarks:

INSTRUCTIONS

1. Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).
   उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न–पत्र कोड, विद्यार्थी क्रमांक आदि)।
2. There are **TWENTY** questions printed in **ENGLISH & HINDI**
   इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।
3. **All questions are compulsory.**
   सभी प्रश्न अनिवार्य हैं।
4. The number of marks carried by a question/part is indicated against it.
   प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
5. Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other that the authorized one.
   प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न–सह–उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे।
6. Word limit in questions, if specified, should be adhered to.
   प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
7. Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.
   उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

EVALUATION INDICATORS

1. **Contextual Competence**
2. **Content Competence**
3. **Language Competence**
4. **Introduction Competence**
5. **Structure - Presentation Competence**
6. **Conclusion Competence**

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

All the Best

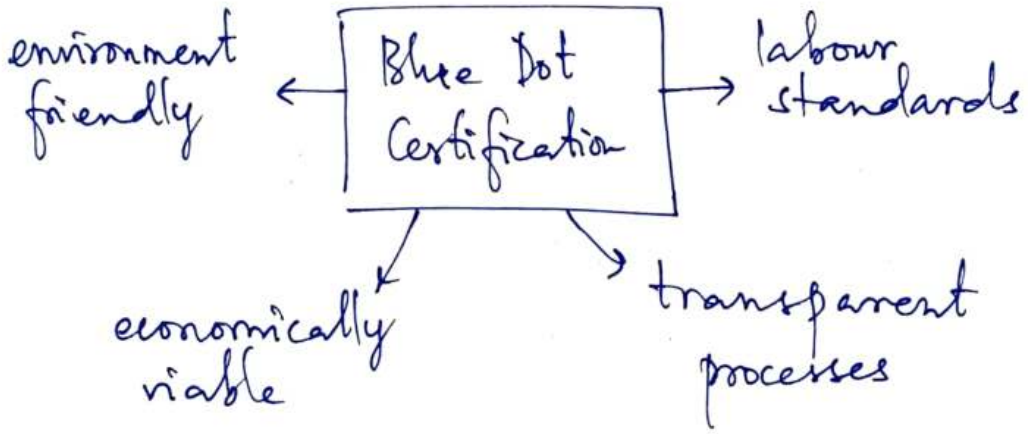
Don't write anything this margin (इस भाग में कुछ ना लिखें)

1. What is Blue Dot Network? Assess its significance for India.

(150 words) 10

ब्लू डॉट नेटवर्क क्या है? भारत के लिए इसके महत्व का आकलन कीजिए।

Blue Dot Network is a grouping of countries such as Japan, USA, etc:- that certifies infrastructure projects around the world.



This is an alternative to the Belt & Road Initiative of China (BRI).

Issues with BRI:

a) debt trap diplomacy by funding economically unviable projects.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

b) lack of transparency in negotiations, allegations of bribery

c) environmental unsustainability.

d) endangers national security.

Significance of Blue Dot Network for India:

1. Global funds will be channeled to certified projects by World Bank, ADB, etc:-

2. Containing influence of China as it provides benefits in refusing Chinese soft loans.

3. Indian projects such as Asia Africa Growth Corridor can get certification helping their completion.

4. Potential for cooperation with US, Japan, Australia, etc:- to safeguard rules-based international order

Thus, it is in line with SDG 17, i.e., partnerships for achieving SDGs.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

2. An engaging feature of the current global situation is the transformation of the Sino-Russian relationship. Examine the potential of this evolving situation for India's foreign policy. **(150 words) 10**
चीन-रूस संबंधों का रूपांतरण, वर्तमान वैश्विक स्थिति की एक आकर्षक विशेषता है। भारत की विदेश नीति के लिए इस उभरती हुई स्थिति की संभावना का परीक्षण कीजिए।

Despite being communist and authoritarian countries, the Sino-Soviet relationship has seen several phases.

Till World War II : antagonistic neighbours

1945 to 1960s : Russia fuelled Chinese communism

1960s onwards : Sino-Soviet split after Stalin's death. This deepened India-USSR relations as seen in 1971 friendship treaty.

1990s onwards, after end of Cold War :

- Russia and China are growing close again
- Western sanctions against Russia are pushing it into arms of China
- high economic dependence of Russia on China

Don't write anything this margin (इस भाग में कुछ ना लिखें)

[Potential for India's foreign policy]:

1. Indo-Russian ties may get hurt.
   e.g: We can no longer rely on Russia for UNSC veto on Kashmir.

2. India may have to ally with USA, Japan and Australia (Quad) leading to a bipolar world order.

3. Indian defence equipment is largely Russian, posing security implications in a potential war with China.

4. Russia and China have a frozen border conflict in Siberia that India can remind Russia.

India has offered a $1 billion line of credit to Russian Far East. In future, India has to restrict the Sino-Russian ties.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

3. Highlighting the significance of the Indian diaspora, enumerate the initiatives taken by the government for engaging the Indian Diaspora around the world. **(150 words) 10**

भारतीय डायस्पोरा के महत्व को रेखांकित करते हुए, सम्पूर्ण विश्व से भारतीय डायस्पोरा को आकर्षित करने के लिए सरकार द्वारा की गई पहलों को सूचीबद्ध कीजिए।

Indian diaspora is among the largest in the world and is as old as the Roma.

indentured labour (Caribbean, Africa, Fiji) ← Diaspora → modern emigration for jobs (Gulf, USA & West)

Significance of diaspora:

1. source of soft power as they spread yoga, Bollywood, Indian cuisine, etc.
2. source of FDI that is long term.
   eg: Sam Pitroda in telecom
3. influence American foreign policy
   eg: Hinduja group lobbied for Indo-US civil nuclear deal.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

4. deepen India's ties with host country by reaching top posts. eg: Kamala Harris.
5. send remittances.

[Initiatives]

1. Pravasi Bhartiya Diwas biennially
2. Operation Vande Bharat to repatriate them during pandemic
3. Outreach by Modi eg: Madison Park, Howdy Modi
4. OCI Cardholder status for benefits like adopting Indian children.

Hence, diaspora is an important angle of policy-making.

Recommendations of L.M. Singhvi committee have to be followed such as setting up standing committee in Parliament for diaspora and considering dual citizenship.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

4. Emerging technologies are increasingly playing a key role in international relations. Discuss in the context of MEA's decision of setting up of a new division on New and Emerging Strategic Technologies (NEST).

(150 words) 10

उभरती प्रौद्योगिकियां उत्तरोत्तर अंतर्राष्ट्रीय संबंधों में महत्वपूर्ण भूमिका निभा रही हैं। नई एवं उभरती सामरिक प्रौद्योगिकियों (NEST) पर एक नया प्रभाग स्थापित करने के MEA के निर्णय के संदर्भ में विवेचना कीजिए।

Prof. Klaus Schwab of WEF recently held that we have entered "globalisation 4.0" where technologies of the 4th industrial revolution like AI and Big Data play a key role.

Significance in International relations:

a) increasing interconnectedness due to faster internet speed with 5G.

b) privacy and espionage concerns affecting national security. Eg: Natanz nuclear facility was attacked by Israel through software in Iran.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

c) disinformation wars fuel authoritarianism. eg: Chinese crackdown in Hong Kong

d) dominance of IT companies such as Google and Amazon that affects state security and rights of citizens.

The proactive establishment of NEST division at MEA will help by:

1. improving research and study on emerging tech and implications on security. eg: IoT, robotics
2. help cooperate with trusted partners such as Japan to ensure safe development of tech.
3. making India a global power in these technologies.

Hence, we have entered the age of technological hegemony and must keep abreast.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

5. Why are shell companies seen as attractive vehicles for those seeking to launder money or conduct illicit activity? Highlight some steps that have been taken by the government in recent times to curb shell companies in India. **(150 words) 10**

जो लोग धनशोधन या अवैध गतिविधियां संचालित करना चाहते हैं, उनके द्वारा शेल कंपनियों को आकर्षक माध्यम के रूप में क्यों देखा जाता है? भारत में शेल कंपनियों पर अंकुश लगाने के लिए हाल के दिनों में सरकार द्वारा उठाए गए कुछ कदमों पर प्रकाश डालिए।

Shell companies are companies that have no productive activity but exist solely to obfuscate financial information or conduct illegal activities.

They are attractive vehicles to launder money and conduct illicit activity since:

a) the information is layered to hinder tracing of the money

b) can escape tax authorities by shifting to a different country.

c) specialised agencies exist in tax havens to help launder money as

Don't write anything this margin (इस भाग में कुछ ना लिखें)

exposed in Panama Papers.

Steps taken :

1. SEBI tightened norms on P-notes, hiking the fee to $1,000.
2. Prevention of Money Laundering Act, 2002 and FEMA enacted
3. Enforcement Directorate and Finance Intelligence Unit ensure law is followed.
4. OECD's Base Erosion & Profit Shifting signed.
5. Automatic information exchange agreements with tax havens like Switzerland.
6. Financial Action Task Force participation

However, shell companies must be traced to curb terrorism & organised crime and increase government revenue

Don't write anything this margin (इस भाग में कुछ ना लिखें)

6. Non-state actors are significant conduits in many important national security challenges faced by India. Explain with examples. (150 words) 10
गैर-राज्य अभिकर्ता भारत द्वारा सामना की जाने वाली अनेक महत्वपूर्ण राष्ट्रीय सुरक्षा चुनौतियों में उल्लेखनीय वाहक हैं। उदाहरण सहित स्पष्ट कीजिए।

Non-state actors are those outside the government. They have increased in the age of globalisation.

They are conduits of national security challenges such as:

① Terrorism - terrorist organisations such as LeT and JeM target civilians (2008 Mumbai attacks) and military personnel (Uri, Pathankot, Pulwama attacks)

② Insurgency & separatism - e.g: ULFA, NSCN and NDFB in North East, JKLF, Hizbul-ul-Mujahideen in JK.

③ Espionage - outsourcing of government functions due to neoliberal model

Don't write anything this margin (इस भाग में कुछ ना लिखें)

gives powers to private companies.
eg:- Zhenhua database leak.

(4) Riots and protests. eg: NGOs funded by China and USA were instigating protests against Kudankulam nuclear plant.

Hence, non-state actors affect human security and sovereignty of state. Recently, disinformation wars to rig elections were discovered due to the Cambridge Analytica scandal.

As former NSA Shivshankar Menon suggested, India must increase capabilities to deal with non-state actors through technology upgradation, capacity building of personnel and international cooperation in FATF and UNSC.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

7. Data Protection is not just a privacy issue, it is also a national security issue. Discuss. **(150 words) 10**
डाटा संरक्षण सिर्फ निजता का मुद्दा नहीं है, अपितु यह राष्ट्रीय सुरक्षा का भी एक मुद्दा है। चर्चा कीजिए।

In 2017, data surpassed oil as the most valuable resource.

Puttuswamy judgement has recognised right to privacy as a fundamental right and called for strong data protection as:

a) Personal data should be the property of the individual

b) surveillance capacities of state (Aadhaar) and big corporations (Google GPS tracking, etc.) must not impinge on right to privacy and personal liberty.

However, data protection is also an issue of national security since:

Don't write anything this margin (इस भाग में कुछ ना लिखें)

a) hostile states can use it through espionage against India (e.g: Zhenhua data leak showing records on Indian leaders)

b) law enforcement needs easy access to data, requiring data localisation

c) financial data, data on critical facilities like nuclear plants, army and dams can cripple the nation if leaked.

Steps taken

1. RBI's "data diktat" for localisation of financial data
2. CERT-In promotes cyber security.
3. awareness campaigns on data protection.

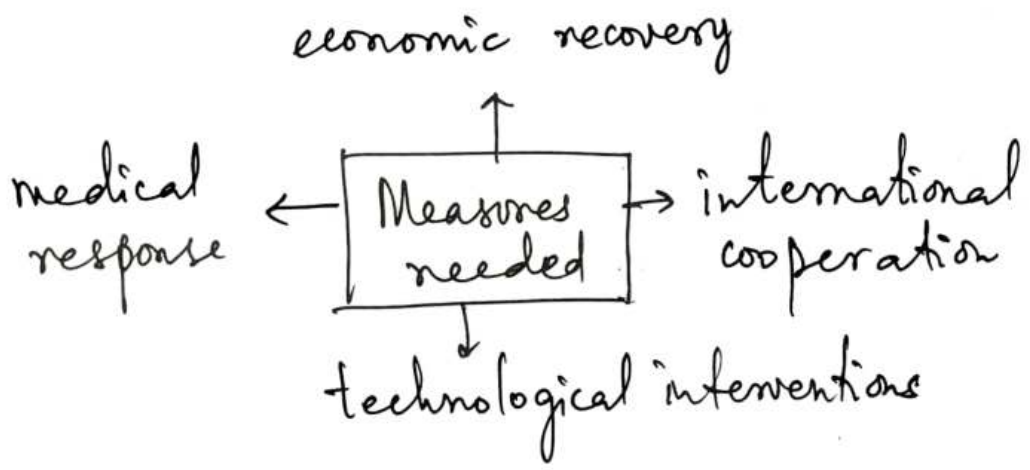
The Personal Data Protection Bill on Srikrishna Committee report must be passed without delay.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

8. Along with other measures, technological interventions are crucial in dealing with the Covid-19 pandemic and its after effects. Explain.
(150 words) 10

अन्य उपायों के साथ-साथ, कोविड-19 महामारी और इसके पश्च-प्रभावों से निपटने में तकनीकी हस्तक्षेप महत्वपूर्ण हैं। व्याख्या कीजिए।

The COVID-19 pandemic is known as the worst global disaster since World War II.



Technological interventions are needed such as:

a) tracking infected people and ensuring strict quarantine. eg: Aarogya Setu App.

b) contract tracing through social media and Google GPS.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

c) digital solutions to replace physical contact such as online services through MyGov, e-newspapers.

d) information dissemination through mass media - TV, radio, social media

e) databases to ensure efficient use of resources. eg: SAARC database on medical supplies and requirement

f) vaccine development - some use mRNA technology that is novel.

Thus, technology can provide a solution. However, we must improve digital infrastructure, bridge the digital divide and invest in tech to utilise it optimally.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

9. Highlighting the significance of genome mapping in India, discuss the associated challenges with the Genome India Project. **(150 words) 10**
भारत में जीनोम मैपिंग के महत्व पर प्रकाश डालते हुए, जीनोम इंडिया प्रोजेक्ट से जुड़ी चुनौतियों की विवेचना कीजिए।

Genome mapping is an exercise that finds the sequence of an individual's genome or genetic information set. A human has 3 billion base pairs in DNA so genome mapping is a complex task.

Significance in India:

① Identify causes of genetic disorders such as Thalassemia that are high in India.

② Historical - trace ancestry, map population trends and demographic changes

③ help develop precision medicine, suited for the Indian genome.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

The Genome India project by CSIR etc:- maps genome of volunteers from all across India.

Challenges:

1. Data privacy - their DNA information must be secured
2. expensive - requires significant resources to purchase equipment, train personnel.
3. Indian genome is not homogenous and varies across ethnicities, requiring vast samples and parallel mapping.

While there are challenges, it is a significant step ~~to~~ and will further medical research.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

10. Explaining how the 5G mobile communication technology works, discuss its differences with LTE. Discuss the challenges being faced in its rollout.
(150 words) 10

यह स्पष्ट करते हुए कि 5G मोबाइल संचार प्रौद्योगिकी किस प्रकार कार्य करती है, LTE से इसके अंतरों की विवेचना कीजिए। इसे आरंभ करने में आने वाली चुनौतियों पर चर्चा कीजिए।

The 5th generation (5G) mobile communication technology has taken the world by storm.

Features as opposed to Long Term Evolution (4G):

1. broader bandwidth, higher speeds
   eg: 100Gbps is a stretch for LTE whereas 5G can easily achieve it
2. lower frequencies, allowing longer distances and stronger connections
3. allows truncation of spectrum and creation of multiple virtual networks on same infrastructure.

Thus 5G is faster, and better. It allows development of IoT and data transfer

Don't write anything this margin (इस भाग में कुछ ना लिखें)

intensive technology like self-driving cars.

Challenges :

① Domination by China – leads to concerns of :
- espionage and data insecurity
- increase dependence on Chinese firms like Huawei.

② existing mobile phones and electronics will not work, leading to e-waste and loss of opportunity for poor if they cannot afford another.

③ geopolitical tensions such as US-China rivalry affect its smooth rollout

④ Poor infrastructure in India – more investment needed for towers, etc.

However 5G will boost economic growth and the Make in India program.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

11. Why did India decide not to join the Regional Comprehensive Economic Partnership (RCEP)? Discuss in the context of domestic interests, India's experience of the free trade agreements and prevailing realities of external trade. (250 words) 15

भारत ने क्षेत्रीय व्यापक आर्थिक भागीदारी (RCEP) में सम्मिलित न होने का निर्णय क्यों लिया? घरेलू हितों, मुक्त व्यापार समझौतों के संबंध में भारत के अनुभव और बाह्य व्यापार की मौजूदा वास्तविकताओं के संदर्भ में विवेचना कीजिए।

RCEP is a trading ~~agrmt~~ agreement between 10 ASEAN countries and their FTA partners: Japan, China, South Korea, Australia and New Zealand.

India decided to opt out of it in the Bangkok Summit in 2019.

Reasons:

1. fears of deepening trade deficit with China and ASEAN countries, hurting domestic industry.

Economic Survey 2019-20 stated that while India has gained overall from FTAs, it has not taken advantage of existing ones with Southeast Asia

Don't write anything this margin (इस भाग में कुछ ना लिखें)

and has lost out to foreign companies.

2. Indian dairy sector that is largely informal and unorganised cannot compete with Australian dairy farms.

3. Indian farmers use outdated techniques and produce lower yields per acre. They will face stiff competition from ASEAN agricultural produce, especially plantation goods like rubber, coffee.

4. High logistical costs in shipments clearances, etc:- makes India's manufacturing sector uncompetitive.

5. Weak country of origin rules

6. free trade in services not expedited, where India has advantage.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Hence, India did not join

Way Forward

India must strengthen its domestic industry by:

a) reforming factors like land & labour (eg: recent labour codes)

b) increasing logistical performance and ease of doing business

c) boost Make in India (e.g: PLI scheme for electronics).

This will help our exports become competitive.

In the medium term, we must join trading blocs to participate in global supply chains, especially since WTO has collapsed and regional agreements are the norm.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

12. It has been argued that the ties between India and Bangladesh are currently passing through a golden chapter. Critically discuss.

(250 words) 15

यह तर्क दिया जाता है कि भारत और बांग्लादेश के मध्य संबंध वर्तमान समय में स्वर्णिम दौर से गुजर रहे हैं। समालोचनात्मक चर्चा कीजिए।

India and Bangladesh have a shared history, culture and deep relations.

Since India helped the creation of Bangladesh in 1971, the ties were warm initially. However, the ties were affected due to:

a) Sheikh Mujib-ur-Rehman's assassination by Zia and BNP party

b) Coup by General Ershad

c) rising religious extremism stoked by Pakistan

d) sanctuary to terrorists / insurgents in North East given in Chittagong hill tracts.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

However, the current chapter of relations seems to be the golden one as:

1. Deep personal friendship of Sheikh Hasina towards Indians and Modi.
2. Land Boundary Agreement has been resolved exchanging enclaves
3. Bangladesh has cooperated in anti-insurgency operations.
4. Cooperation in electricity, trade and transit eg: Kaladan project using inland waterways.
5. Allowing villages in Tripura to draw river water.

However, the picture is not entirely rosy. Sticking points in the ties are:

Don't write anything this margin (इस भाग में कुछ ना लिखें)

a) illegal immigration into North East that Bangladesh does not acknowledge. Assam NRC has heightened tensions.

b) CAA has been criticised as questioning the secular nature of Bangladesh by suggesting its minorities are not safe.

c) Teesta issue with West Bengal not agreeing on a settlement

d) Increasing influence of China in defence cooperation, etc.

India must take advantage of the friendly Awami government to iron out disagreements. It must fast track projects like Ruppur power plant and strengthen interdependence.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

13. India has consistently argued for nuclear disarmament yet has not signed some of the most significant global treaties in this context. What are the reasons for the same? Do you think its time to revisit India's stand on the issue? **(250 words) 15**

भारत ने निरंतर परमाणु निरस्त्रीकरण का समर्थन किया है, किन्तु फिर भी इस संदर्भ में कुछ सर्वाधिक महत्वपूर्ण वैश्विक संधियों पर हस्ताक्षर नहीं किए हैं। इसका क्या कारण है? क्या आप मानते हैं कि यह इस मुद्दे पर भारत के रुख पर पुनर्विचार किए जाने का समय है?

"Nuclear weapons are the most diabolical use of science" – Gandhi.

Since its independence, India has advocated nuclear disarmament to ensure world peace.

The Rajiv Gandhi Plan of Action in 1988 included:

- complete and time-bound nuclear disarmament.
- Strict scrutiny under IAEA safeguards.
- no stockpiling by existing de jure nuclear powers.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

However, India has not signed the treaties for disarmament as:

a) Non-Proliferation Treaty (NPT) only prohibits horizontal proliferation and allows existing nuclear powers to increase their stockpiles. This leads to:

- a world of nuclear haves & have-nots
- fear of nuclear blackmail

Hence, India acquired nuclear weapons in 1998 to deter China.

b) Comprehensive Test Ban Treaty:

- major powers like USA have not ratified it
- China, US and Russia already have ability for simulated testing that is not covered.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

- it tries to solidify existing asymmetries between the P5 and rising powers.

c) Nuclear Test Ban Treaty:

- this is negotiated at UN where 2/3 majority is enough instead of Conference of Disarmament where consensus is required
- major powers like USA, China have not signed it.

Recently, it is suggested that India revisit the stand, since a nuclear war in South Asia is highly likely.

India has agreed to sign Fissile Material Cut Off Treaty and is part of Wassenaar Arrangement. However, the basic stand of complete disarmament of all must be maintained to ensure national security.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

14. In the context of India-China ties, explain the term 'Panchsheel'. In view of the argument that China has persistently violated these principles, argue whether the longstanding approach requires changes. **(250 words) 15**
भारत-चीन संबंधों के संदर्भ में, 'पंचशील' शब्द को स्पष्ट कीजिए। इस वाद-विवाद के आलोक में कि चीन ने इन सिद्धांतों का बारंबार उल्लंघन किया है, तर्क प्रस्तुत कीजिए क्या इस दीर्घकालिक दृष्टिकोण में परिवर्तन की आवश्यकता है।

Panchsheel, inspired by Buddhism, was ideated by Nehru as a model to govern international relations.

5 principles :

1. non-interference in domestic affairs
2. respect for sovereignty and territorial integrity
3. equality for mutual benefit
4. peaceful coexistence.
5. mutual non-aggression.

In 1954, India and China agreed to follow the principles of Panchsheel in bilateral relations.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

However, China has persistently violated these principles as seen in:

1. support to armed insurgents in North East and Naxalites
2. aggression on border during 1962 war, 2017 (Doklam), 2020 (LAC standoff), etc.
3. illegal occupation of Indian territory in Aksai Chin
4. Support to Pakistan on Indian territory in Gilgit - Baltistan
5. data espionage as revealed by Zhenhua database on Indian leaders
6. refusing India's entry into NSG & UNSC.

Thus, China does not follow Panchsheel in practice. It is suggested that India's approach must also change.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Way Forward:

1. India must cooperate with countries seeking to contain China such as Japan, USA, Vietnam, Indonesia, etc:-
2. Necklace of Diamonds strategy to counter China's string of pearls.
3. reform multilateral fora like UNSC for Indian representation.
4. India also holds the "Tibet card" with Dalai Lama and could reignite Tibetan insurgency.
5. expose Chinese oppression of Uighurs, Tibetans and Cantonese to the world.

India and China have lived in peace for millenia and in hostility only for decades. In the short term, we should contain China, in long term ensure peace.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

15. The ongoing Covid-19 pandemic has expanded and rearranged the concept of national security, making it more inclusive, and foregrounded human security in a more holistic manner. Comment. **(250 words) 15**

वर्तमान कोविड-19 महामारी ने राष्ट्रीय सुरक्षा को और अधिक समावेशी बनाते हुए इसकी अवधारणा का विस्तार एवं पुनर्निर्माण किया है तथा अधिक समग्र रीति से मानव सुरक्षा को सर्वाधिक महत्वपूर्ण बनाया है। टिप्पणी कीजिए।

The COVID-19 pandemic is the most pressing challenge to national security that India faces today.

Issues

- → health crisis endangering lives of vulnerable sections
- → economic crisis due to measures to curb infection spread
- → hostile neighbours taking advantage of our crisis – e.g: LAC standoff due to Chinese aggression, Nepal's revised maps
- → security of livelihood for the poor due to out of pocket expenditure on health and loss of jobs.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Thus, the pandemic has expanded the notion of national security to include human security. It has been realised that for the nation to continue on its growth trajectory,

- health of the people is of prime importance
- social security must be strengthened.
- reliance on other countries for essentials like PPEs and APIs must be curbed.

Hence, the pandemic is a lesson on security.

Steps taken :

1. Atmanirbhar package to reduce reliance on China, boost domestic

Don't write anything this margin (इस भाग में कुछ ना लिखें)

industry and create jobs.

2. Banning of Chinese apps and restricting hostile takeovers of Indian companies by Chinese ones due to low stock prices.

3. Enhancing PDS quantity of grains

4. New Labour Code on Social Security, 2020

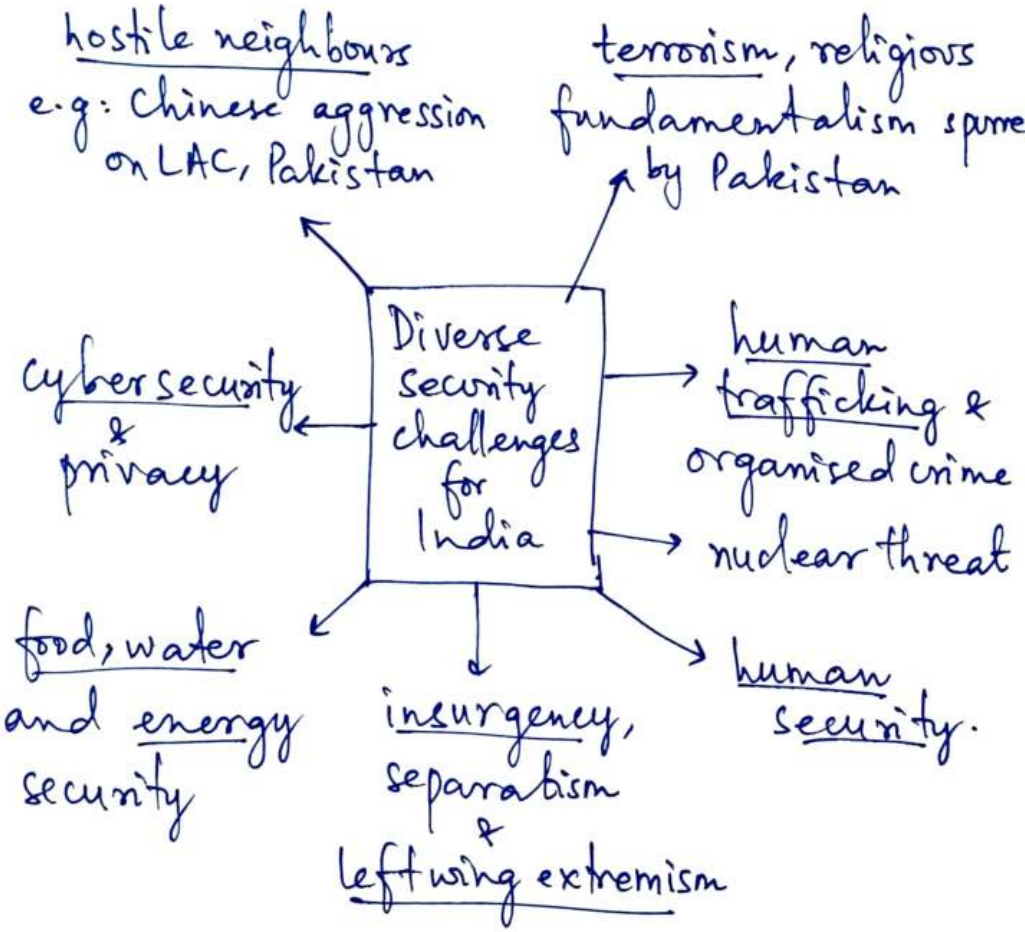
The people are the ultimate essence of a nation and national security thus has to be centered on human security.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

16. Given the diverse security challenges as well as external and internal linkages, developing a National Security Strategy for India requires a comprehensive approach. Explain. **(250 words) 15**

विविध सुरक्षा चुनौतियों के साथ-साथ बाह्य और आंतरिक जुड़ाव को देखते हुए, भारत के लिए राष्ट्रीय सुरक्षा रणनीति विकसित करने हेतु एक व्यापक दृष्टिकोण अपनाए जाने की आवश्यकता है। स्पष्ट कीजिए।

National security is of prime importance in order to ensure safety of the people and development.



Don't write anything this margin (इस भाग में कुछ ना लिखें)

Thus, India faces diverse security threats. These have external linkages due to:

- globalisation and interflow of goods, people and ideas across borders
- hostile neighbours like China and Pakistan

This requires development of a comprehensive National security strategy. This would ensure:

① military preparedness - to deter and manage threats from neighbours

eg: • nuclear triad
• border infrastructure - roads, helipads
• intelligence, surveillance and reconnaissance.

② prompt detection of security challenges:

• improved coordination between intelligence agencies like IB, RAW.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

- periodic testing of critical software to detect bugs and malware.
- cooperation with other countries through INTERPOL, FATF, UN Office on Drugs and Crime, etc.

③ Develop capability of swift response:

- CERT-In for cyber security should have increased resources, manpower
- coordination between enforcement agencies such as ED, CBI, CRPF, forest department, local police, NIA, etc.

④ Protect Critical Information Infrastructure and ensure reliability of food, water and energy resources.

- develop dam capacity
- protect Sea Lanes of Communication
- strengthen firewalls.

Thus, a holistic security strategy must be framed, spearheaded by National Security Council.

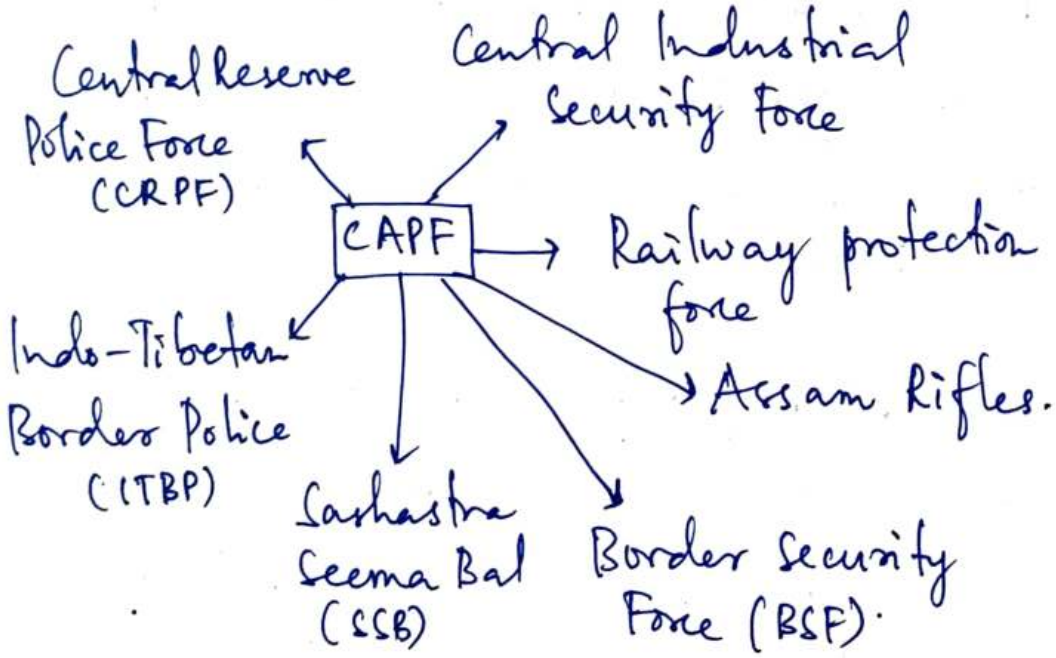
Don't write anything this margin (इस भाग में कुछ ना लिखें)

17. It is widely recognised that India's Central Armed Police Forces (CAPF) are in urgent need of overhaul. Discuss in the context of issues associated with personnel, infrastructure and service conditions of these forces.

(250 words) 15

यह व्यापक रूप से माना जाता है कि भारत के केंद्रीय सशस्त्र पुलिस बलों (CAPFs) में आमूल-चूल परिवर्तन की तत्काल आवश्यकता है। कार्मिक, अवसंरचना और इन बलों की सेवा-शर्तों से जुड़े मुद्दों के संदर्भ में चर्चा कीजिए।

Central Armed Police Forces (CAPF) are the paramilitary forces of the country, largely under the Home Ministry.



They perform varied functions such as:

- border vigilance – BSF, ITBP, SSB, Assam rifles
- internal maintenance of law & order: CRPF

Don't write anything this margin (इस भाग में कुछ ना लिखें)

- protection of critical infrastructure - CISF, RPF.

Issues:

1. Shortage of manpower and trained personnel:
   - battalions are deployed for diverse purposes and are shared.
   - inadequate training. e.g: how to handle physically challenged during disasters, lack of sensitisation to local issues.

2. Infrastructure: • poor infrastructure such as proper border posts, night surveillance equipment, mobile communication infrastructure, medical facilities.
   - poor coordination and inadherance to SOPs leads to mishaps like IED blasts slipping through the radar eg: Pulwama attack on CRPF convoy.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

3. Service Conditions:

- poor quality of food - as suggested by CRPF jawan in viral video
- long hours and low leaves
- issues in pensions due to dual control of Home & Defence Ministries eg: Assam Rifles.

Hence, there is need of urgent overhaul:

a) Improve infrastructure through Border Area Development Program, increased budgetary allocation.

b) capacity building for tackling diverse security threats, improve service conditions

c) rationalising border forces - e.g: Assam Rifles can handle Indo-China border in North East, solve jurisdictional issues.

Hence, CAPF need to be revamped.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

18. What do you understand by Critical Information Infrastructure? Highlight the significance of Critical Information Protection and state the measures taken to ensure the same. (250 words) 15

महत्वपूर्ण सूचना अवसंरचना से आप क्या समझते हैं? महत्वपूर्ण सूचना संरक्षण के महत्व पर प्रकाश डालिए और इसे सुनिश्चित करने के लिए उठाए गए कदमों का उल्लेख कीजिए।

Critical Information Infrastructure is the vital infrastructure that keeps a nation running smoothly such as transport and communication, banking services, etc.

Significance of its protection:

a) Due to the growth of the economy, disruptions in areas like mobile telecom signals, rail lines, stock markets can cause large-scale economic loss, riots and even endanger lives.

b) It is prone to security threats especially cyberwarfare eg: Israeli

Don't write anything this margin (इस भाग में कुछ ना लिखें)

attack on Iran's software in the Natanz nuclear facility.

Q).

[Measures taken]

① National Cyber Security Policy of 2013 provides for establishment of a National Critical Information Infrastructure Protection Centre (NCIIPC).

② Computer Emergency Response Team (CERT-In) for tackling cyber attacks

③ informal adherance to Budapest Convention on Cybersecurity.

④ Central Industrial Security Force to protect power plants, etc:-

Don't write anything this margin (इस भाग में कुछ ना लिखें)

In the age of Industrial Revolution 4.0, the new front of war is information warfare in the cyberspace.

India must enhance its measures to include:

a) indigenisation of software in critical facilities to reduce scope for hacking

b) capabilities of containing damage must be in place such as denying services if a data breach is located.

c) capacity building of personnel.

The National Cyber Security Policy of 2013 must be fully implemented.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

19. Explaining how quantum computers work, discuss the challenges that need to be addressed for the scalable development of this technology. Also, highlight significance of the recently launched National Mission on Quantum Technologies & Applications (NM-QTA). **(250 words) 15**

यह स्पष्ट करते हुए कि क्वांटम कंप्यूटर्स किस प्रकार कार्य करते हैं, उन चुनौतियों की विवेचना कीजिए जिन्हें इस तकनीक के आरोह्य (स्केलेबल) विकास हेतु दूर किए जाने की आवश्यकता है। साथ ही, हाल ही में आरंभ किए गए क्वांटम प्रौद्योगिकी और अनुप्रयोग पर राष्ट्रीय मिशन (NM-QTA) के महत्व पर प्रकाश डालिए।

Quantum computers are a revolutionary innovation.

Functioning :

① Instead of using boolean format of 0 or 1 to store data in bits, qubits store a range of 0 to 1. This enables storage of massive amounts of data.

② electrons at quantum state are very unstable and produce probabilities instead of concrete results. Hence, a calculation has to be run thousands of times.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

② They reduce the time taken to solve complex problems. For e.g, Google's sycamore has claimed quantum supremacy, stating that it solved a calculation that would take thousands of years on a normal computer in just 200 seconds.

Challenges:

1. Significant investment needed to set up the ideal conditions to ensure quantum state.

2. Quantum computers can easily crack existing end to end encryption based on public and private key infrastructure (Y2Q issue)

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Significance of National Mission on Quantum Technologies & Applications:

a) India can acquire capabilities. Since it requires enormous investment, private companies may not be willing.

b) boost to space programme, defence capabilities, etc.

c) a service sharing network will enable academic and R&D institutions to use them to improve research.

Thus, quantum computers are revolutionary. However, India has to proactively invest. We also have to improve security systems to avoid the Y2Q problem.

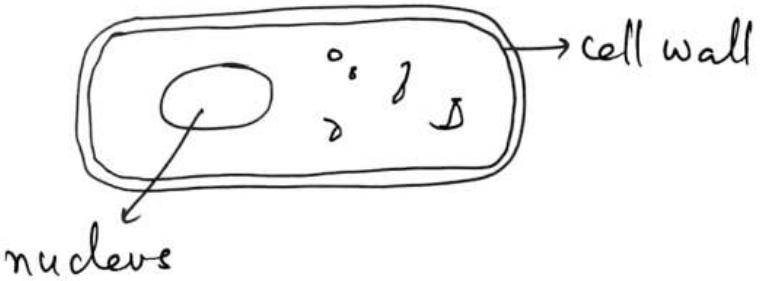
Don't write anything this margin
(इस भाग में कुछ ना लिखें)

20. Bring out the differences between bacteria and viruses. Also, explaining why antibiotics can work against bacteria but not viruses describe the general working of vaccines designed to attack certain viruses.

(250 words) 15

जीवाणु और विषाणु के मध्य अंतर स्पष्ट कीजिए। साथ ही, यह स्पष्ट करते हुए कि क्यों प्रतिजैविक दवाएं जीवाणुओं के विरुद्ध काम कर सकती हैं, लेकिन विषाणुओं के विरुद्ध नहीं, कुछ निश्चित विषाणुओं पर वार करने के लिए तैयार किए गए टीकों की सामान्य कार्यप्रणाली का वर्णन कीजिए।

Bacteria are cellular organisms that are living creatures.



They have a cell wall that protects them and a nucleus with mitochondria for metabolism.

Viruses on the other hand are without a proper cell structure. They are enclosed by a protein or lipid layer like the SARS-CoV-2.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Viruses cannot live on their own and need a host to provide energy.

Antibiotics

- Antibiotics work by breaking the cell wall of an organism. Hence, they are effective against bacteria but not against viruses.
- Common bacterial infections like TB, pneumonia can be cured through anti-biotics but not viral infections like the common cold.

Vaccines

Vaccines are the preferred method to tackle viral infections. They generally work by:

- improving the immunity of the

Don't write anything this margin (इस भाग में कुछ ना लिखें)

individual through exposure to a weakened or inactive virus or by mRNA which enables cells to produce particular immune cells.

- They only work against a speific viral strain as opposed to anti-biotics that work on most bacteria

The recent COVID-19 pandemic has required large-scale vaccination of populations to achieve herd immunity.